

MachHome

Solutions for Work, Play & Education

Can't we all just get
Online

Modems Reviewed

E-mail Apps Examined

Browsers Compared

Internet ills Cured



S. MARINE CORPS TARGET

U.S. MARINE CORPS 25-METER
ZEROING PROCEDURES

19:42 You learn the hard way in the outer sector... Like never get into a drinking match with a three-headed Bukaan. Never assume a Strogg is dead even when he's nothing but bloody scraps of stragnel. And never go to bed with a Rabaul no matter how many breasts she has.



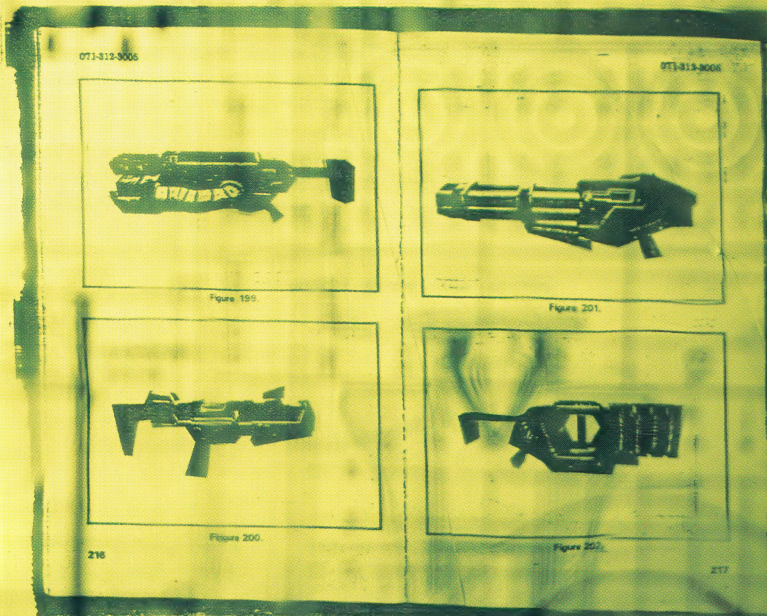
19:11

THE LINE BETWEEN MAN AND MACHINE
SHOULD NEVER HAVE BEEN ERASED.

Blood vessels and wires should never have been crossed.
Souls and circuitry, brain stems and processors.

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"Action Game of the Year"
— PC Gamer & CGW



www.idsoftware.com

LINE NO.	EVALUATION	
1	Large, complex missions	What you do in one level could affect another. One false move and you could alert security, flood a passageway, or worse.
2	Superior artificial intelligence	The enemy is far from stupid. They will evade attacks, maneuver into strategic attack locations, and hunt your ass down.
3	Intense environments	Man gun turrets. Blow up subways. Smash glass. Toss grenades with perfect control. Duck to evade hits. Give them Hell.

18:03 Grottesque images of Straggs have been filling my sleep at night. Their metallic spines jutting awkwardly through muscle, skin and connective tissue, masks of human facial skin smeared and bonded to their cyber-alloy heads, crude but powerful weapons jammed into oozing, gaping sockets. Thank God for endless sleep ahead is dreamless.

17:05 It's either us or them this time. We lose, and we all end up breakfast on the grill of some ungodly mechanized creature. We win, and the human Coalition of Man can start rebuilding the cities in Mass, Olympus, even Earth. Who knows - this might even get the old intersplanetary football league going again. (God, I miss Monday Night Football.)

"...there's simply nothing on this planet that can touch Quake II."

IV - 39

PC Gamer



U A K E II™



may 1999 contents

volume 7, number 5

[www.machome.com]

The Online Issue

E-Mail Madness! _____ 12

By Jeff Battersby

E-Mail: It's the most-often used application on the Internet. We use it to communicate, transmit images, jokes, movies, and everything else under the sun — we use it instead of the telephone. What's the best e-mail application out there? Find out here: We review seven e-mail applications, plus five Web-based e-mail services.

Modems, Modems, Modems! 56K Modems Reviewed _____ 18

By Frank O'Connor

Still slogging along in the Internet slow lane with a 14.4Kbps or 28.8Kbps modem? Thinking about putting on the blinker and getting in the fast lane with a speedy new 56K model? Put your hands on the wheel and your foot on the gas, because we're testing 56K modems with bits to burn.

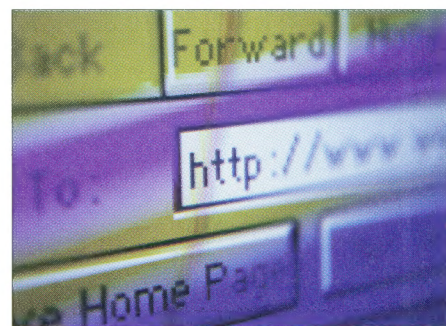
Troubleshooting Your Internet Connection Make the Wild, Wild Web Work for You _____ 24

By Alan Stafford

"You have been disconnected — because we felt like it." Maintaining a fast, reliable, connection to the Internet can be difficult, and when everything crashes around your ears, the reasons why may seem capricious. This guide will help you figure out why your modem isn't responding, your browser is crashing, and your ISP won't respond, and it'll give you tips on solving those problems.



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NewsWire

Read all about it: news, products, rumors, gossip, quotes and innuendo

- G4 Chips previewed
- Whole lotta megapixel cameras
- Adobe goes product-crazy
- New Palm devices, Mac software
- ArcSoft's extra-cool PhotoMontage package
- FireWire drives arrive
- More SCSI options for new and old Macs
- New 3D packages, accelerator cards, low-impact iCab browser



iMac EVOLUTION MOUSE

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Hooking up your office for online access

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The latest in kids' software

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X misses the spot

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Don't get me started on e-commerce

Reviewed This Issue

Your Office: Software

★★★★	Communicator 4.5
★★★★	AOL 4.0
★★★★	Internet Explorer 4.5
★★★★	Poser 3
★★★★	Ray Gun 1.2
★★★★	Details 2.01
★★★★	Kai's Power Tools 5
★★	MacComCenter Plus

Your Office: Hardware

★★★★	iPort
★	CompactFlash PhotoReader
★★★★	Zip 250
★★★★	Epson Stylus Color 900

Entertainment

★★★	America's Greatest Solitaire Games
★★★★	Ares Ultimate Warrior
★★★★	Gamestick 3D
★★★★	Klingon Honor Guard
★★★★	Nightfall
★★★★	Solitaire Antics Deluxe

Your Family

★★★★	1999 Grolier Multimedia Encyclopaedia — iMac Edition
★★★★	Art 20
★★★★	Complete Guide to the Undersea World
★★★★	D.W. The Picky Eater
★★★★	My Very First Little People Playhouse
★★★★	Pajama Sam's Lost and Found

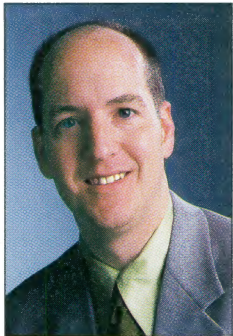
Our Rating System

★★★★	Mac-nificent. You gotta get it. No flaws.
★★★★	Excellent. Recommended even if it has a minor flaw or two.
★★★★	Average. Despite problems, still a worthwhile product.
★★	Below Average. Has serious flaws that limit its usefulness or fun.
★	Poor. Avoid this product at all costs.



Indicates iMac/G3 compatibility

from the chief [Editorial]



Warranted for Five Years or 50,000 Phone Calls

Mrrphm! I've been muzzled! The FBI has put a stop to my anti-PC ramblings. No, we're devoting more space to useful, informative articles. Like, where to find good cheese. OK, maybe not that one.

An acquaintance owns a PC. It's a couple of years old, and as PCs are wont to do, it broke. Died. Its little rubber feet, straight up in the air. Another PC gone to meet its maker. It cacked.

Time to buy a new one, right? It's not worth fixing; it's too old, and PCs are pretty inexpensive. It'd cost as much to fix it as to get a new one. But wait — here comes The Most Delicious Extended Warranty.

Extended warranties are usually bitter pills, because you have to pay up front for loophole-ridden, worthless insurance. Some sales shark twists your arm to buy the warranty when you buy the product because he or she makes more commission on the warranty than on the product. The products that people buy such warranties for never break — or the manufacturers have cut their own warranties to the bare minimum so that the salespeople who hawk their products are happy. And we all know that products only break after the warranty runs out anyway.

But in this case, the extended warranty should have been a scrumptious morsel best enjoyed with a nice Gewürztraminer and soft candlelight. Before the PC left this world (please remove your hats in due respect), my acquaintance had fallen for — er, *purchased* — the extended warranty from a very large electronics dealer. My acquaintance was about to be one of the few, the proud, to be able to say he knew the product was going to break and he was wise to purchase the extended warranty. But fate (and the very large electronics dealer) conspired against him.

First, he took the departed PC to the one of the very large electronics dealer's in-store service departments, which kept it for a couple weeks to sniff it over and see if it was indeed dead. It was. My acquaintance then produced his extended warranty, which apparently caused a stir. He would have to call the home office; no one there could authorize his cashing in on The Most Delicious Extended Warranty.

He called the home office, and left message after message. Secretaries told him he had to talk to the boss; the boss was never in and never returned calls. Finally, he threatened; the boss answered his phone. The boss referred him to someone else. Days later, he got through; the person said he would have to call yet another number. He hung up and called the number — and it was the voice mail of first person he had talked to. So, small claims court, here we come.

The moral of the story? Don't get the freakin' extended warranty. It tastes *bad*.

Alan Stafford

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AGFA 

Write On [Your Letters]

Winnie Mac

I read your editorial on why Apple should port its upcoming Mac OS X to Intel (x86) hardware ["X Marks the Spot," February 1999]. I disagree strongly with your opinion.

Apple enjoys an advantage with its own hardware that it will never, ever have on x86 machines: total control and total information. Apple controls every aspect of the computers for which it writes an operating system. It can decide what belongs in the operating system and what belongs in the firmware. And because Apple designs and develops all the software and hardware, Apple knows everything it needs to know without having to beg for information.

These two luxuries don't exist in the PC world. No one has created an OS that works correctly on all PCs sold today. There is always some hardware that is not supported. You might say, "But everything has Windows drivers!" Perhaps, but Windows doesn't work correctly on all PCs.

The amount of effort that Apple would have to expend to support the PC market would be enormous. Not only that, the market share for Mac OS X for Intel would be minuscule — no one would buy it! There already are a number of alternate operating systems: OS/2, Linux, FreeBSD, and BeOS are the top four, and combined they don't even control 10% of the market. The number of sales of Mac OS X for Intel would be nowhere near enough to cover the costs.

If Apple tried to port its new OS to x86, it would fail.

Timur Tabi

With regard to your editorial in February, I would like to put my own two cents in. Upon reading your article through very quickly, I became terribly upset over its contents. Then I reread it slowly. I began to see the issue from your perspective and thought that

it wasn't that bad of an idea. I can reason that it would increase Apple's profits and put the Mac OS on almost any computer. But that is where my agreement ends.

After being a Mac user for many years, you begin to develop a bond with your computer. I know it sounds silly, but it's true. I just could not see the Mac OS running on processors that have been "enemies" to Apple for years. It just isn't morally right. Apple has stood up for so many years in its conviction that the Mac hardware and software are superior to all other computers in the world. Why ruin that now? Why shatter people's feeling that the Mac OS is something you can get only from Apple, something that is one of a kind? Is profit the most important thing in the world?

Matt Janeczek

I loved your editorial. Making Mac OS X an option for all computers would be a great idea. I hope Apple is listening. I'm reading *MacHome* from cover to cover, and counting on it to update me in a nontechnical way about Apple and my new G3. I'm constantly defending my Mac to people at work, and you have given me the ammunition I need.

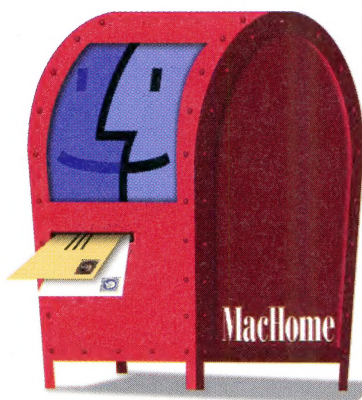
Pat Croft

I would only appreciate the Mac OS on a Wintel machine if Wintel machines were as reliable as Apple's. They are not. I beat the stuffing out of my home Performa, but it weathers any storm and keeps on going. My wimpy Wintel at work freezes in the slightest draft.

Greg Lefevre

Mmmn, AppleWorks

I was delighted to see AppleWorks/ClariscWorks named best word proces-



sor for 1998. After all the hype and hullabaloo over Microsoft Office 98 when it was introduced, fool that I am, I paid the equivalent of U.S.\$750 for the English language package. Dang! Do I

ever wish I had my money back. While I realize some high-end users at NASA and in publishing may on rare occasion need something like Office 98, for us mere mortals, using Office 98 for most jobs is like going after a gnat with a thermonuclear bomb compared with the elegance of AppleWorks. And when one factors in the cost, AppleWorks is *hors concours*. As for the note that it's "kinda like Microsoft Office," thank God it's not!

Roy M. Payne, Ph.D.

Caveat Emperor

Are we all afraid to tell the emperor that he has no clothes? I was dazzled by the new iMacs when they first came out, but am reconsidering after seeing a couple of them in clients' houses. They have to be the one item that doesn't blend in regardless of the person's decorative sense: brightly colored and shouting, "Hey look at me!" You'd think that Apple would figure out that a more subdued look (charcoal, sepia, or even black) will ultimately fit into more households, especially as the company seems to aim at a clientele that has a little more money, not to teenagers. Still, I'll probably buy one, because my current Mac is fast becoming an antique, and I crave a G3 no matter how ugly.

Matt Granz

Got the Free Upgrade

I thoroughly enjoyed your interview with Douglas Adams in the February issue. I was amused to read about his "collection" of Macs. The G3 PowerBook has also become my workhorse.

I have a Performa 630 that I was considering replacing. Because I was going to be in England for four months this past fall, I decided the PowerBook would be a good option, and I planned on upgrading my desktop computer after I returned. Instead, I've found that the PowerBook does everything I need. My Performa serves mainly as backup and a very large paper-weight. (It will probably end up as my mom's first computer.)

Chris Riff

The Inside Scoop

I just read the book review "Apple: The Condensed Version" by Alan Stafford in the February issue. Alan is correct in his assessment of Jim Carlton. But I disagree with him about reading Mr. Carlton's book.

As stated in the article, even Apple's successes have always been portrayed as blunders by Carlton and others like him. I remember something my father, who lived during the big crash, told me: "If you say the bank is going under often enough, the bank will go under." It seems that in 1984 Apple stepped on some toes with the big anti-IBM ad that launched the Mac. The *Wall Street Journal* and the *New York Times*, both big IBM-ers at the time, could not let Apple get away with it.

I'm still amazed that Apple was able to withstand all the years of negative journalism. I firmly believe that if it had not been for all the bad press, Jobs would have never been ousted by the board. Too many of the board members believed that the *Journal* and the *Times* would never write falsehoods.

There may be some interesting items in Carlton's book, but you can be sure that they are negatively slanted. So do yourself a favor, find some old Mac magazines instead of buying this book, and you may get a glimpse of the real history of Apple.

Gil Heroux

This Just In: The eMate Is Still Dead

Mac, schmiMac. I want (or think I want) the eMate. After your rave reviews [January 1997], I've been waiting patiently, but nothing. Where is it? Is there some way I can see it?

Also, is there an electronic organizer with about 256K and Mac compatibility for around \$100 or less? Something like the ones that Rolodex, Sharp, or Casio offer for the PC? Sure would be nice.

MGNACarter

Um, Apple discontinued the eMate last year. It is deceased. It is no more. It is an ex-computer. Apple is working on a consumer portable to replace it; it should be out by this summer. If you can't wait, look at the 3Com Palm V; it doesn't have a cool transparent green shell, but it will dock with a Mac.

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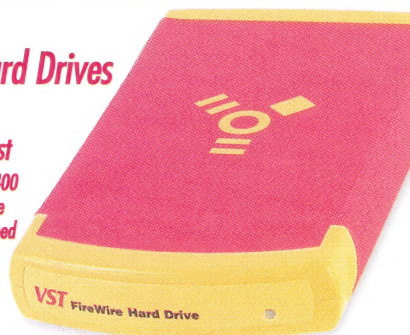
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G4 on the Floor

Motorola Previews Upcoming Processors

The powerplant for the next generation of Macs took center stage at the International Solid-State Circuits Conference held in San Francisco in February. *Ta-da!* It's Motorola's 450MHz G4 processor.

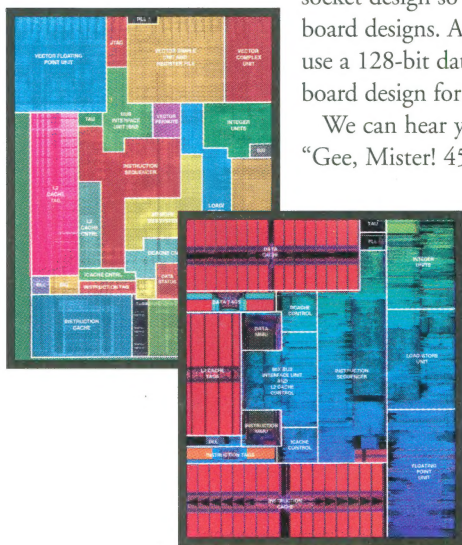
How long it will be until the G4 works its way into new Macs is anyone's guess, although Apple has demonstrated prototypes based on the copper-process chip before, most notably at the 1998 World Wide Developer's Conference. At the time, Apple said it hoped to ship systems based on this processor by the end of 1999. What a way to start the millennium!

The chip, using a whopping 10.5 million transistors, will incorporate a 64-bit data path just like the current generation of G3 processors, and will use the same 360-pin socket design so it can be integrated with current motherboard designs. A second design, this one using 625 pins, will use a 128-bit data path, but will require an updated motherboard design for computers such as the Mac.

We can hear you snorting with derision already, saying, "Gee, Mister! 450MHz is only 50MHz faster than 400MHz, which is where we're at now. What's the *point*?" The new chips will use a technology called AltiVec to provide faster instruction execution, especially when dealing with multimedia files. AltiVec uses a type of processing called single-instruction, multiple data (SIMD) that lets the processor set up one type of process and then apply it to successive iterations of incoming data, instead of setting up the process each time new data is received. This approach lets the processor act like a digital-signal processor (DSP), and also boosts networking speeds, says Motorola.

Motorola considers AltiVec to be a subset of the PowerPC architecture, much as the well-known MMX architecture supplemented Intel's Pentium a while back. AltiVec is the first major architectural change to the PowerPC since the chips were introduced in 1991, Motorola says.

The flipside: AltiVec's enhancements will only be available via — you guessed it — rewritten software. So applications designed for earlier chips might not see much of a speed boost with the G4s, other than the 50MHz boost compared with today's chips. However, Apple is rumored to be rewriting certain key parts of its OS, including QuickTime, QuickDraw, and Open Transport, for AltiVec. Were this to occur, it would help the performance of many applications whether they were rewritten for the G4 or not, because most Mac software makes heavy use of these OS components.



Quick — spot the difference. That's Motorola's new G4 above, and the current G3 below.

Megapixel Corner

Welcome, photography fans. Yowza. Ricoh, Toshiba, Nikon, and Olympus — the usual suspects — have all announced new multi-megapixel digital cameras.

Ricoh's USB-enabled RDC-5000 has 2.3 million pixels, a 2.3X optical zoom, time-lapse, and 8MB of onboard memory. It captures images in JPEG format in either 1,792 x 1,200 pixels, 896 x 600 pixels, or 640 x 480 pixels. Pricing has not been announced yet, but get this — when connected via USB, the camera emulates a disk drive for drag-and-drop picture transfers. Again, yowza.

Toshiba's PDR-M4 (also not priced yet) has a 2.1-million-pixel CCD, but who's counting? The camera includes a 1.8-inch backlit LCD, a 2X digital zoom, and several resolutions up to 1,600 x 1,200 pixels.

Meanwhile, Olympus's \$999 C-2000 Zoom sports a 3X optical zoom, resolution up to 1,200 x 1,600 pixels, and copious manual settings to assuage nostalgic traditional photographers. Why, it even offers settings to emulate 100, 200, or 400-speed film.

Nikon has two new cameras — the \$999 Coolpix 950 and the \$599 Coolpix 700. Both are miniature cameras with a 2.1-million-pixel CCD. The 950 has a 3X optical zoom and a larger LCD than the 700, which uses a digital zoom. Both support resolutions of up to 1,600 x 1,200 pixels.

Nikon, 800-645-6687,
www.nikonusa.com
Olympus, 800-347-4027,
www.olympus.com/digital
Ricoch, 800-225-1899,
www.ricohcpg.com
Toshiba, 800-550-8674,
www.dsc.toshiba.com

Adobe's Dog and Pony Show: Acrobat, PageMaker, GoLive

Adobe Systems unveiled several new products in February and March, encompassing the publishing, electronic document, and Web-design worlds, though the news wasn't all good for Mac users. Acrobat 4.0, the latest version of the company's groundbreaking Portable Document Format (PDF) software, breaks ground mostly on the Windows side: it simply does more stuff there than on the Mac platform.

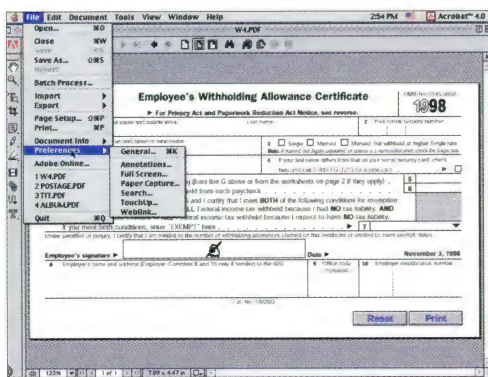
Acrobat 4.0 doesn't bring much to the Mac table at all, as far as we can tell. It adds a new interface, printing support for Adobe's PostScript 3 for better shading and text printing, and some new color-management and annotation functions. Otherwise, all the cool stuff is in the Windows version, which, among other things, lets you convert HTML files to PDF and extract table data to spreadsheet applications; most significantly, it supports digital signatures for workflow and e-commerce applications.

Adobe's contradictory presentation of Acrobat 4 touted PDF as a "universal" solution yet did not provide a consistent feature set for both Windows and Mac platforms. An Adobe spokeswoman would only say that it is responding to customer directives with the new release, and that Windows users tend to work in more collaborative workflow situations than Mac users. She said Adobe will be watching for market demand before bringing these features to the Mac side.

The rollout sparked howls of protest from Mac users on Web forums, though a few remarks were made in Adobe's defense. Should you wish to share a polite opinion, Adobe's feedback site is www.adobe.com/supportservice/custsupport/feature.html.

PageMaker 6.5 Plus made its debut with a few improvements such as a magnetic lasso tool for easier item selection, and support for 99 layers and 95 effects,

which makes the program a little more adept at image-processing functions. Adobe added a library of stock illustrations and photos, and a beefed-up tutorial. A new image and template preview feature is for Windows only.



Adobe also trotted out GoLive 4.0, the first cross-platform version of the Web-design package. It includes a revised QuickTime editor for animation, support for influential Web technology such as extensible markup language (XML), Active Server Pages (ASP, from Microsoft), JavaScript Actions, and Dynamic HTML. GoLive 4.0 costs \$299, Acrobat 4.0 costs \$299, and PageMaker 6.5 Plus costs \$499. Upgrades are \$99 for each program. Adobe, 800-833-6687, www.adobe.com

RU Wired 4DVD?

DVD electronics manufacturer Wired Inc. (not the magazine) announced a new DVD playback card, the amusingly named Wired 4DVD, which it said will work in all existing PCI-based Macs, including the blue G3s. The MPEG-2 decoder card, based on a chip from Sigma Designs, includes composite and S-video output, as well as digital audio via a Sony/Philips Digital Interface Format (S/PDIF) jack. This means you can easily view your movies, documentaries, and shorts on ancillary systems as well as on your Mac screen. Of course, you'll also need a DVD-ROM or DVD-RAM drive; the card itself will cost \$199, but it will be bundled with drives from various manufacturers, according to Wired.

Apple offers an internal daughtercard that attaches to a proprietary slot on the Blue G3's ATI Rage 128 graphics card, but Wired said it is for DVD playback on the Mac screen only. "Our solution is a bit more flexible," said Wired spokesman Thomas Burke. It also supports playback of any type of MPEG-2 files direct from a hard disk, he said.

The card will also include some innovative frame-rate conversion tools that will let you play back PAL (European) standard titles on NTSC (American) gear, and vice versa.

Wired Inc., 650-969-9300, www.wiredinc.com

Any (Serial) Port In a G3

Apple's decision to exclude certain technologies from its new G3 systems has inspired GeeThree.com, a company comprised of former Apple employees, to develop a solution that gives your G3 a serial port. The \$39 Stealth Serial Port is a tiny device that plugs into the Mac's internal modem slot. Though you lose a modem slot, you gain a true serial port, which connects modems, digital cameras, printers, and so forth.

The Stealth works with almost any serial device, including ones that are not Communications Toolbox-savvy. Such products, which include some printers, do not work with serial ports that have been added via PCI cards, said Bruce Gee, president of GeeThree.com. Stealth even supports MIDI and LocalTalk devices. GeeThree, www.GeeThree.com



Sweaty Palms

Palm Computing recently released two seriously stylish new Palm Pilot PDAs that are sure to find warm, fuzzy homes inside jacket pockets everywhere. They are the \$369 Palm IIIx connected organizer, sporting an improved screen and twice the memory (now 4MB) of the earlier Palm III, and the \$449 Palm V, a curvaceous rendition of the PDA that uses internal rechargeable batteries instead of the AAs used in the other models.

The Palm V, which ships with 2MB of RAM, has a tony anodized aluminum casing for that important space-age look, and is thinner than its boxy, unsightly predecessors. The HotSync cradle doubles as a battery charger for this model.

Both units hook up to your Mac with the MacPac 2 software, which finally shipped in February and is available for \$15 at Palm's Website.

Incidentally, accessories vendor Keyspan introduced a \$40 USB adapter for the Palm cradle, finally bringing the Palm experience to us all. *Rapture!*

Palm Computing, 408-326-5000, www.palm.com

Keyspan, 510-222-0131, www.keyspan.com



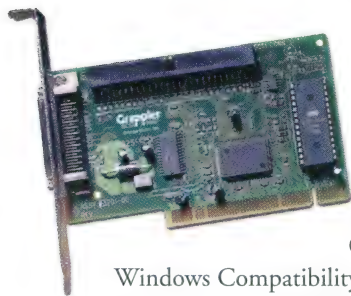
Orange's Grappling Hook

For those of you with the SCSI-less blue G3s, or even older PCI-based machines that could use a little *oomph* in the SCSI department, Orange Micro offers the SCSI Grappler, a new SCSI card that gives you 10MB per second of satisfying connectivity. That's roughly double what you'll find built in on Macs, you know. And it's only \$49 for the basic version, but be prepared to wait — the first batch of these sold out quick like, and Orange Micro had to placate the angry, pitchfork-carrying mobs with rain checks. There are also the SCSI-3 and Ultra-Wide Grapplers, which provide top speeds that are double and quadruple that of the basic model; these list for \$68 and \$150, respectively.

Orange Micro also introduced the OrangePC 665

Windows Compatibility Card, a PCI card made specifically for the Blue G3 Macs. It starts at \$864 for a model based on a 200MHz IDT WinChip processor (a Pentium clone, of sorts) with 32MB of RAM, expandable to 256MB.

Orange Micro, 714-779-2772; www.orangemicro.com



VST FireWire Drives Arrive

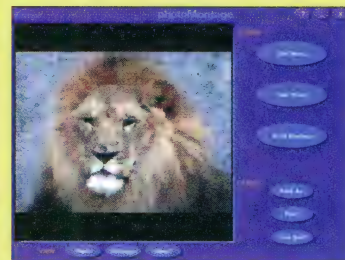
VST Technologies is making good on its promise to take its diminutive yet potent FireWire drives to the people. The company is offering three models of the pocket-sized, neon-colored drive, none of which require a power supply — they tap into the FireWire bus for juice. 2GB, 4GB, and 6GB designs are available for \$300, \$400, and \$500, respectively.

VST Technologies, 978-635-8200, www.vsttech.com



Crazy Mixed-Up Photos

Have you seen those cool movie posters, like the one for *The Truman Show*, that use a montage of hundreds of photos to make one large one? Pretty astonishing, eh? Well, now



you can do the same thing on your Mac with ArcSoft's PhotoMontage software. This \$79 package ships with a database of 20,000 photos that you can use to make your own montages (though you can also add up to 1,000 of your own — a good use for digital cameras). You enter a picture that you want processed, and the software does the rest: analyzing color and contrast information to place the mini-images that make up the montage. You can also vary the number of images in your montage, and print in three sizes, including 2 x 3 feet — your standard movie poster.

ArcSoft, 800-762-8657, www.arcsoft.com

Corel for the Whole Family

Emboldened by the iMac's success, Corel is reportedly developing several graphics-related products for the consumer world. The products are expected to be reworkings of the company's existing software, such as the stately CorelDRAW, and should ship in early summer — at or before Macworld Expo. "There's no question that Apple is back to health," said John Geleynse, Corel's Mac product manager, "so we plan to go with the momentum."

3D for All, All for 3D

The Three Stooges only did one movie in 3D, with Shemp instead of

Curly, but you still have to respect the 3D art form. Now Maxon Computer offers up a low-cost 3D application that can be used to learn modeling and animation, and provides an upgrade path for those who catch 3D fever. Cinema 4D Go, priced at \$195, includes facilities for ray tracing, compositing, and alpha channels, and can work with effects such as depth-of-field motion blur, reflections and

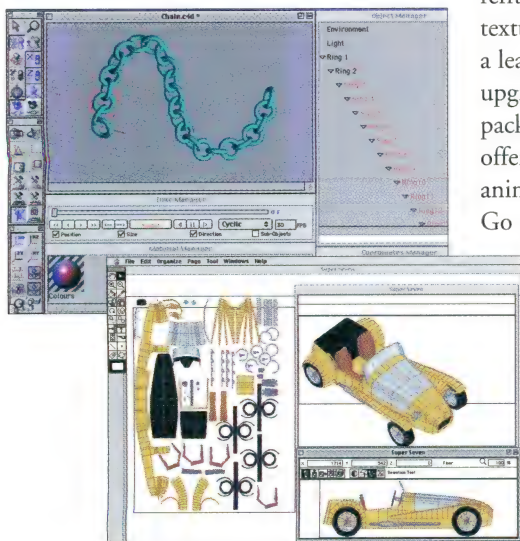
refractions, and real-time playback and texture previewing. The software provides a learning path (and a discounted upgrade) to the \$995 Cinema 4D SE package, which is a more professional-level offering for intermediate and advanced animators. Space-age bonus: Cinema 4D Go includes a *spaceship construction set*.

Script Software International is also in the 3D sphere with the release of Touch-3D 2.1. This \$325 package, downloadable from the company's Website, is a specialized little item: It's designed to help you make actual 3D models. First Touch-3D draws the object onscreen, then "unfolds" it so you can work with its constituent

parts. Think of all the potential models — miniature igloos, quonset huts, and dodecahedrons, to name a few. Or yachts, if you're the yachting type.

Maxon, 877-226-4628, www.maxon.net

Script Software, www.scriptsoftware.com



Evolution of the Trackball

It's downright weird looking, but it's highly programmable. It's the USB trackball that is ... the

Evolution

Mouse-Trak.

ITAC Systems has long made precision trackballs and pointing devices for electronics

design, and now it's entering the Mac market with this ergonomically designed six-button device. You can use the buttons in various combinations for click, double-click, and click-drag functions. The \$99 product has "ballistic acceleration": the faster you move it, the more the cursor accelerates. It's an exponential thang.

ITAC Systems, 800-533-4822, www.moustrak.com

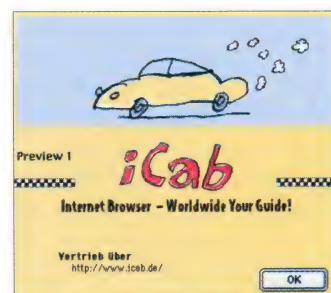


Ich Bin Ein Browser

All the way from Germany comes a *vorsicht* little Web browser called iCab. It's a small (2MB) program with fast performance and a simple but full-featured design that might just shake up the Web world.

iCab is initially available in German, though an English version should be ready by the time you read this. If it's not, and you simply can-

not wait, there's an unofficial, hastily translated English version available at www.cise.ufl.edu/~phandel/bin.icab, www.icab.de



Newer, Faster, Better, More

Hyperactive accessories vendor Newer Technology has several meaty announcements. First, Newer's introducing a 466MHz ZIF (zero-insertion force) G3 card for first and second-generation G3 desktop systems, for \$1,499.

Surprisingly, the card operates slightly faster on the first-generation G3s, Newer said, because its speed is determined by a multiple of the system bus speed. This hot and spicy but very pricey little card is equipped with 1MB of backside cache.

Then, there are new G3 upgrades ranging from \$449 to \$1,149 (from 300MHz to 400MHz, incorporating differing amounts of backside cache) for the Power Mac and Performa 5400, 5500, 6360, and 6400 lines, the 20th Anniversary Mac, and the Umax c500 and c600 and Power Computing PowerBase clones.

But wait — there's more! Newer's also got some faster G3 cards for the original Power Macs. A 266MHz card for the 6100 lists for \$399, while a 300MHz card for the 7100 or 8100 costs \$699, or \$50 less without an internal video card connector.

Now how much would you pay? But don't answer yet, because Newer is also readying the uTV, an external USB box that acts as both a TV tuner and a video-input unit for composite or S-video signals. uTV's price isn't set, but Newer said it'll be less than \$150. Last, Newer slashed the price of its G3 upgrade card for the PowerBook 1400. A 233MHz card, once priced at \$599, now lists for a paltry \$449, while the 250MHz design, formerly \$799, now goes for a laughable \$599.

Newer, 316-943-0222, www.newertech.com

E-Mail

A look at **E-mail** clients for Your Mac and the Web

By Jeff Battersby

E-mail is quickly becoming the most widely used communication medium, aside from the telephone. Because of this, there's a veritable mail storm out there, with dozens of e-mail clients vying for a spot on your desktop.

We looked at Sonosoft's Musashi, CE Software's Quickmail Pro, CTM Development's PowerMail, Bare Bones Software's Mailsmith 1.1, Qualcomm's Eudora Pro, and Microsoft's Outlook Express. Conspicuously missing from this list is Claris Em@iler, which, alas, is no more — Representatives from Apple told us that it had no plans for further development of Em@iler.

While all of the programs reviewed here fulfill their basic purpose of allowing you to send and receive e-mail, some go the extra mile. They can all collect mail from multiple e-mail accounts, and they all provide simple address books.

But they vary in three main ways: filtering, which enables you to automatically sort e-mail as it comes in and reject unsolicited e-mail; mail-handling, or the manipulation of your e-mail once you start collecting it; and ability to handle HTML-based e-mail — that is, e-mail that has graphics, sounds, hyperlinks, and other elements from Web pages.

Musashi

Far from being an item you'd pick off a sushi menu, Musashi is a colorful e-mail program you from the Land of the Rising Sun. But it's got some problems. Some menu items are misspelled, and its buttons require two clicks rather than the usual single click. That's not so bad, but the text on some menu items over-run the keyboard commands, many of which are unreadable. And some of the program's labels are misplaced relative to their data-entry fields, making it very difficult to use, to say the least.

That said, Musashi handles basic e-mail functions just as well as the big boys do. Unique to Musashi is the ability to create or download custom plug-in modules that change the look and feel of the entire program — not necessarily a mail feature, but fun nonetheless.

On the tools front, Musashi is able to handle text in multiple languages, but its filtering capabilities are not fantastic, and it's another area in which Musashi's English syntax can cause much confusion. Equally confusing is figuring out how to open attachments — There's no menu item for extracting them, and dragging them to the desktop only creates a clipping file. There's also no way to view embedded graphics or HTML files in an e-mail message. In short, Musashi ends up being a basic e-mail program that can handle simple tasks in

Madness



a colorful manner, but it isn't an e-mail workhorse.

QuickMail Pro

QuickMail Pro sports a straightforward, easily accessible interface. Installing QuickMail adds a QuickMail Menu to your menu bar, from which you can access many features even if the program isn't open. Selecting text in an open word-processing document and choosing Send Selection from the QuickMail Menu creates a new e-mail message with the selected text as the body of the e-mail. Also unique to QuickMail is the MailTicker, a small window that displays a running list of all new, unopened mail. The MailTicker can float on top of all running applications, making it easy to know whether you need to check your mail or not.

QuickMail has some baffling, if not irritating shortcomings, and at the top of the list is the way it addresses new messages. Rather than placing the cursor in the To field, the program places it in the Subject field. Then, when you click in the area where you'd expect to type the addressee information, you're suddenly greeted with your address book. Clicking on the word "To," which is next to the address field, allows you to begin typing: the exact opposite of what you'd expect. Secondly, QuickMail's entire help system is HTML based,

which isn't bad, but to access it you need to go to the CE Software Website. Finally,

QuickMail provides very limited mail-filtering capabilities via the program's Mail Manager. If you have a need to process your mail in anything more than a rudimentary fashion, QuickMail will fall far short of your expectations.

PowerMail

PowerMail's interface is similar to the now-defunct Claris Em@iler, so it's familiar to many people, and it's easy to use. The main mail browsing window is made up of three sections that allow you to view the status of your inbox, outbox, and other folders you can name yourself. Selecting a message from your inbox displays the body of your selected e-mail message in a separate window. Easy access to the majority of PowerMail's features is available from a tool bar at the top of your screen.

PowerMail also includes an indexing feature that catalogs every word in every message you receive — a vast improvement over Musashi and QuickMail. This feature makes quick work of finding specific information within long-forgotten e-mail messages.

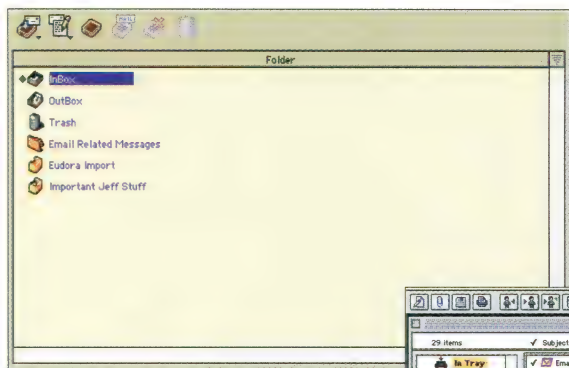
PowerMail is limited somewhat by the number of filters and actions you can apply to any incoming message: two of

each. While two may be enough for the average user, this is a severe limitation if you need sophisticated processing. Also, filters can only be applied to incoming mail, so if you want to keep your sent mail in specific folders, PowerMail won't suit your needs.

MailSmith 1.1

MailSmith provides powerful mail-filtering functions wrapped in a user interface that's amazingly, uh, bare bones. You won't find a graphical button anywhere: Dull, battleship gray meets you at every turn, leaving you feeling as if you've been sent to the e-mail equivalent of a Russian gulag. MailSmith doesn't provide any support for embedded graphics, so if someone sends you an HTML-based e-mail, you'll just see the text — though some may call that a feature, not a bug, because it will save download time.

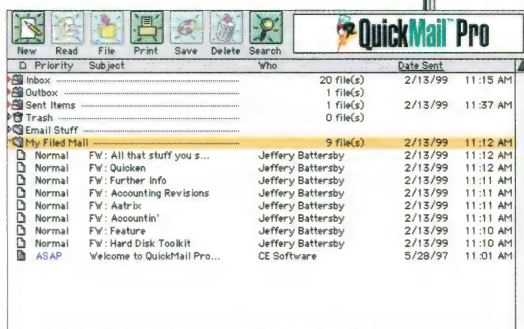
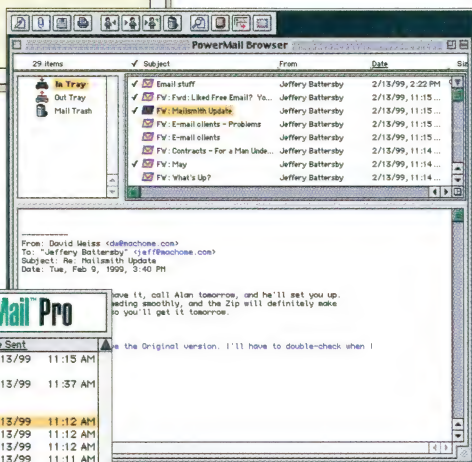
While MailSmith lacks some of the finesse of other programs, it has no competitors in the area of pure mail-handling power. It can perform tasks such as searching for specific e-mail header information and distributing the mail to multiple mailboxes, or stripping attachments from messages and depositing them in specific folders.



◀ **Musashi** has colorful themes that transform the look of the program.

▼ **PowerMail** provides a powerful indexing feature to catalog your every word.

▼ **QuickMail Pro** sports a straightforward, easily accessible interface.



people receiving your messages will need PureVoice as well.

While Eudora Pro is on the cutting edge of e-mail technology, the program's address book is abysmal. To add a person to your address book, you have to give him or her a nickname — a feature that some programmer in Qualcomm's Eudora group felt was an absolute necessity. Eudora also provides no means of importing addresses from other e-mail programs, or even from a simple tab-delimited text file. So if you're planning on converting to Eudora and you have a large address book, you may want to keep this in mind.

Outlook Express

Break out the wooden stakes, and grab the garlic and your best cross. Microsoft may be the company to hate, but its e-mail program, Outlook Express, is top-notch. First, it has the best price: It's free. Second, it has dozens of features.

A single filter can have up to three criteria and five actions applied to both incoming and outgoing mail. While this is no match for MailSmith's nearly unlimited mail actions, it's certainly enough to satisfy most people.

If you have MS Office 98 installed on your Mac, Outlook Express will immediately flag misspelled words as you type them. Outlook Express's address book

Eudora was one of the first to allow you to view attached graphics directly within your e-mail message, including HTML-based messages. The

program also has a capability that's currently unavailable in any of the other e-mail programs — PureVoice, which lets you send voice messages. The quality is merely adequate, but the sound files are small enough that they won't take hours to download. To use this feature, the

Eudora Pro

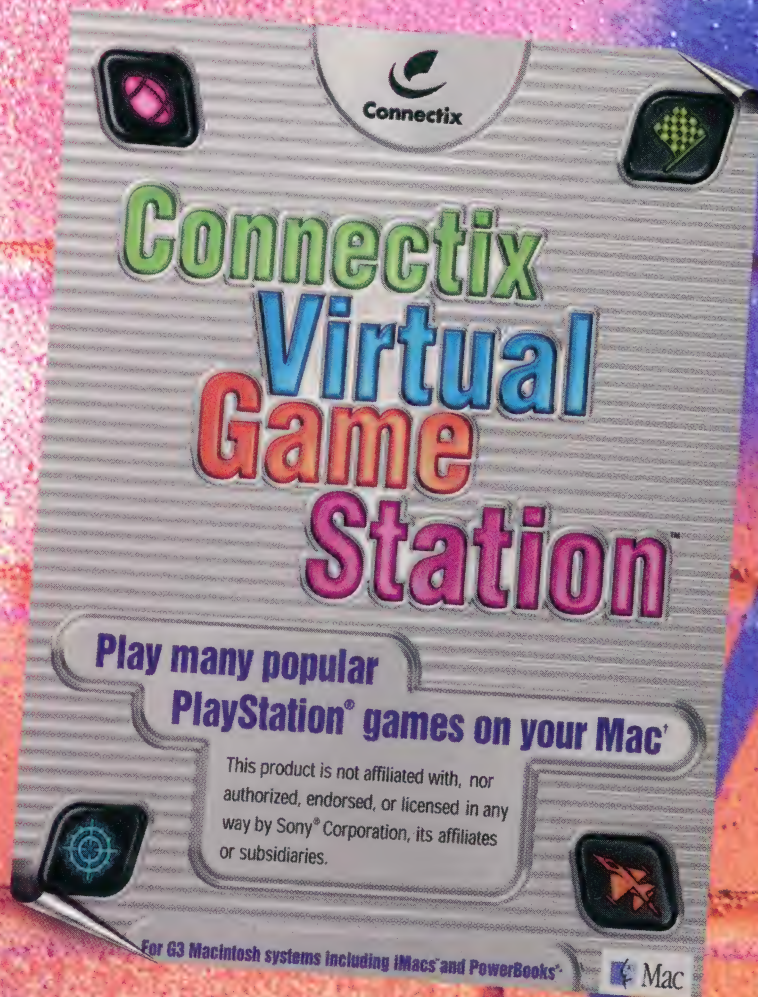
You're probably already familiar with Eudora Pro — it's been one of the best e-mail packages on the market for quite some time. It comes loaded with features that aren't available with any of the other commercial e-mail packages.

E-Mail Clients

Product	[Thumbs-Up]	[Thumbs-Down]	Rating
Eudora Pro \$39, Qualcomm www.qualcomm.com	Direct viewing of HTML messages and embedded graphics, good filtering, excellent user interface	Incapable of directly importing third-party address books, unwieldy nickname feature	★★★★
Musashi \$33, Sonosoft www.sonosoft.com	Easy-to-use interface, color plug-in capable	Major syntactic and spelling errors, limited filtering capability, not much bang for the buck	★★
Outlook Express Free, Microsoft www.microsoft.com	Excellent, well-designed, easy to use program; top-notch filtering, HTML Savvy	No way to leave a portion of an e-mail message on the server	★★★★½
PowerMail \$49, CTM Development www.ctmdev.com	Powerful find feature, interface is a happy-medium between Outlook Express and Claris Em@iler	Limited filtering capabilities	★★★
QuickMail Pro \$46, CE Software www.cesoft.com	Easy-to-use cross-platform product	Very limited filtering capabilities, HTML-based help resides at the CE Software Website	★★½
MailSmith 1.1 \$79, Bare Bones Software www.barebones.com	The most powerful mail sorting/searching features on the market	Austere, clunky user interface, expensive	★★★★½

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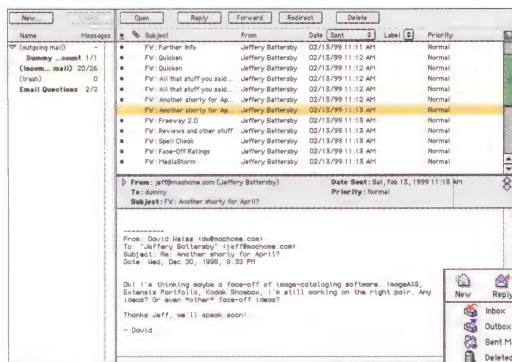
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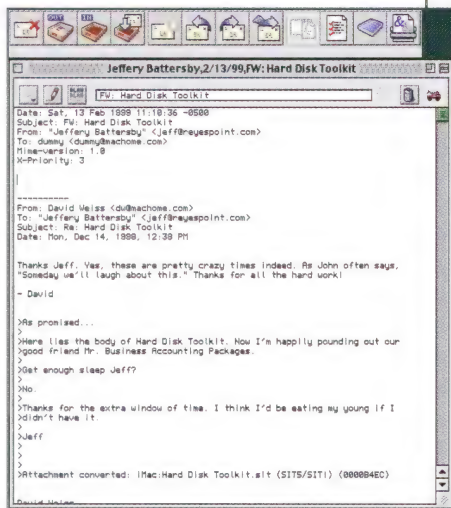
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 **Connectix**



▼ **Eudora Pro** lets you view HTML and graphics directly in your message.

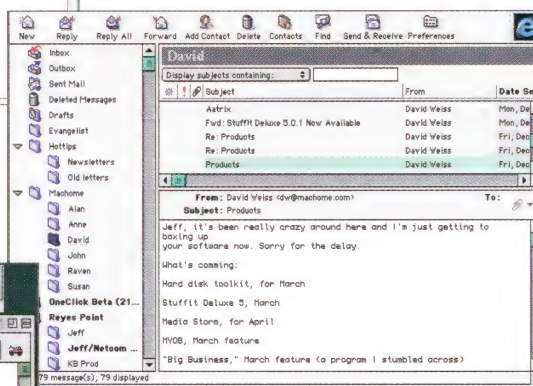


stretches far beyond the storage of simple e-mail addresses, allowing you to store names, multiple addresses, phone numbers, and notes on each contact. In contrast, every other program, with the exception of Eudora Pro, stores barely more than an e-mail address. Outlook Express also provides full support for creating and viewing HTML-based e-mail messages. While this can be a handy feature, many e-mail packages are incapable of directly viewing Web pages and graphics. So if you choose to use this feature, you may alienate some of the people receiving your mail.

Outlook Express does have one minor but significant downfall: You can't set the program to download just the message headers so that you can see what you're getting before you download it. This comes in handy when some over-zealous relative sends you an e-mail with fifty photos of his or her grandchildren attached.

◀ **MailSmith** has superior mail-handling powers.

▼ **Outlook Express** packs a bevy of impressive features.



Web Mail

A little more than a year ago, there was only one place you could collect your e-mail: within the e-mail program on your Macintosh. Now nearly every Web portal — from Yahoo! to Ned's Corner Deli — will allow you to set up an e-mail account for little more than a few tidbits of personal information. Typically, this information is used to sell advertising on your "free" e-mail page. In most cases it's a small price to pay for the versatility these programs offer.

With one exception, the list of Web-mail sites that we reviewed here reads like the perky patter of an cheerleader who's had a few too many bowls of Wheaties: Hotmail, Jump!, Yahoo!, Excite, and Net@address. Yee-hah!

With Web-based mail, you can get your mail from any browser, on any platform, but there are a few downsides. Many of them have the ability to check mail from a POP server, so you can use them to check your home e-mail from afar, but some are better than others at getting through to such servers. Often your mail shows up in one long list with each new e-mail message displayed as a standard hypertext link. As in any standard e-mail program, you can then either immediately delete the message, file it the folder of your choice, jump to the next message, or jump back to the previous message or to your inbox. But no

matter what you're doing, you're always loading and reloading Web pages, so it's not for the faint-of-modem. Also, almost every Web-mail program throws an advertisement in your face at every turn. Finally, "free" Web-based e-mail is a bit of a misnomer. You still need to have some kind of access to the Web. For those individuals who get Web access as a job or education perk, no problemo. For the rest of us, we're already paying for e-mail, and it comes without advertising.

Excite

If you've recently purchased a new Mac or upgraded to Mac OS8, you'll find that Excite has become your default "home page." But if you're planning on setting up your e-mail home on the Web, you may want to look elsewhere. You're only provided with 3 MB of storage space, which if you plan on receiving attached files from your friends, is pretty limited. The other Web-mail sites don't publicize any limitations in storage space. You'll also discover that Excite is pretty thick with distracting ads. I also found Excite's method of downloading files attached to messages to be somewhat clunky, whereas Hotmail and Jump! have it down to a science.

Net@address

Sheesh! Net@address now knows more about me than my mother! Of all the Web-mail services, Net@address was the most invasive and therefore, from my perspective, the least desirable. And what do you get for all that extra information? More advertising! Logging out takes you to a huge "sponsor" page — a giant ad for Net@address's sponsor du jour. While the site includes a spell-checker, I was unable to make it work, which admittedly could have been a temporary network burp. Net@address was also the least intuitive when it came to downloading attachments with your e-mail.

To be included among Net@address's foibles is its very inflexible POP mail features. While every other Web-mail program allows you to check your external mail at any time, Net@address only

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The National Software Testing Laboratory, Inc. (NSTL) found that when printing a color photo on coated paper in 720 fine mode, the EPSON Stylus Color 740 prints up to twice as fast as other printers. The NSTL report is available by calling 1-800-GO-EPSON. NSTL testing uses typical software applications and conditions. Actual results may vary according to applications, print settings and computer configuration. Price may vary. Epson and EPSON Stylus are registered trademarks of Seiko Epson Corporation. Micro Piezo is a trademark of Epson America, Inc. All other product and brand names are trademarks and/or registered trademarks of their respective companies. ©1999 Epson America, Inc.

lets you check it daily or hourly, a severe limitation if you're planning on using Net@ddress as your main e-mail client.

Yahoo! Mail

Yahoo! Mail is likely to be the most familiar of all the Web-mail programs, and if you've already got a personal Yahoo! page, you've already got Yahoo! Mail. Yahoo! has also added a calendar function, similar to the one on Jump!, that allows you to synchronize your Web-based calendar and address book with your PalmPilot.

Yahoo! lacks the usual advertising madness of some of the other sites, a fact I found surprising considering how heavy the advertising is in other sections of Yahoo! But Yahoo! Mail has one rather impractical problem: If anyone else has a Yahoo! e-mail account on the Mac or PC that you're using, you'll have a difficult time creating a new account. This has to do with the cookies (files which track a surfer's habits) associated with the Yahoo! Mail site, which apparently, aren't very flexible when it comes to multiple users. Yahoo! Mail also has an overly cumbersome spell-checking feature that bounces you among several windows before finally completing a spell-check.

Hotmail

Hotmail is Microsoft's Web-based e-mail client. It offers some pretty nifty features, not the least of which are its writing tools. Using Hotmail, you can check

your spelling, consult a dictionary, or choose some Really Big Words using Hotmail's online thesaurus. Hotmail will also let you check e-mail attachments for viruses using McAfee's VirusScan before you download them to your Mac, a feature that's unavailable on any of the other Web-mail sites.

Hotmail's advertising is pretty limited to Microsoft Network or Hotmail-related ads. You'll see messages reminding you to check attached files with McAfee's virusScan or some other pablum about the Microsoft Network. Otherwise it's a pretty happy thing to be getting your mail from Hotmail.

Jump!

What all the other programs lack in interface Jump! makes up for in spades. This is the only Web-mail program that works and looks just like a desktop e-mail application. First, you view your mail without having to flip back and forth between individual pages. By using frames, the program displays your entire e-mail message in a window just below your list of new messages — a rather simple concept that makes Jump! a standout among the others. Jump! also integrates a PIM (personal information manager) into the package, so you can keep all of your information, from address book to calendar, in a single place. Jump! also expects to provide future integration with your PalmPilot. Also, of all the Web-based programs I

viewed, Jump! requires the least amount of personal information from you.

On the downside — and this is a very irritating downside — Jump! doesn't provide any clear way to add the e-mail address from your currently displayed e-mail message to your address book — An oversight that, when rectified, will easily send Jump! to the top of the heap.

It's in the Mail

Of the e-mail applications, QuickMail, PowerMail, and Musashi only provide you with basic functions. MailSmith has excellent find and sort features, but it needs a cosmetic makeover.

Outlook Express far surpasses any of the others in the sheer number of features. Combine that with the fact that Outlook Express has the best price on the market, and you've got yourself a near-perfect program. If you just can't get yourself to jump on the Microsoft bandwagon, Eudora Pro is a very close second, providing many of the same features as Outlook Express, though it is marred by a few minor irritations.

On the Web, the race is a bit tighter. Yahoo! Mail is certainly adequate, but as for Excite and Net@ddress, given that there are so many viable alternatives, you just might not want to go there. With the exception of the addressing problem, Jump! is a real standout. It has a beautiful interface that doesn't force you to load page after page. But Jump! lacks the writing tools that make Hotmail a gem. **III**

Web-Based Mail Sites

Product	[Thumbs-Up]	[Thumbs-Down]	Rating
Excite Free www.excite.com	Excellent POP connection capabilities	Linear, page-to-page interface, limited storage space, copious amounts of irritating advertising.	★★
Hotmail Free www.hotmail.com	Has dictionary, thesaurus, spell-checking, McAfee virus-scan; excellent POP connection capabilities	Linear, page-to-page interface	★★★★I
Jump! Free www.jump.com	Best interface of the bunch, has Web-based PIM (personal information manager)	PalmPilot sync is currently unavailable for the Mac, POP mail not working at time of review	★★★★
Net@ddress Free www.netaddress.com	Provides basic Web-based mail service	Too much personal info required, way too much advertising, unintuitive download option, limited POP mail checking	★
Yahoo! Free www.yahoo.com	Limited advertising, PalmPilot sync capabilities, spell-checking	Linear, page-to-page interface; quirky multi-account problems; cumbersome spell-check feature	★★★★

Modem, Modem, Modem

The 14.4Kbps modems of just a couple years ago are getting a bit dated. They were kickin' when Apple's Quadra was state of the art, but time has left them behind. New 56Kbps modems based on the v.90 protocol (a standard governing how 56K modems are manufactured) are two to four times as fast. Thanks to v.90's fairly rapid adoption by Internet Service Providers (ISPs) and modem manufacturers, everyone can now enjoy faster modem connections. MacHome has rounded up some of the best new v.90 fax modems out there and put 'em through the paces.

The devices we tested here returned a narrow range of connection speeds, so the truth is that most casual users won't be able to tell much difference in speed between them. 56K modems do not provide the instantaneous access and massive bandwidth, of say, a cable modem, but they're cheap and universally available. So, with any of these 56Kbps modems, you should see a decent improvement over a 33.6Kbps modem, but don't expect miraculous or exponential performance enhancement.

There is a chance that your Internet Service Provider (ISP) doesn't support v.90 yet. If it doesn't plan to upgrade soon, it might be worth looking at an alternative service. We tested these modems with v.90 connections with America Online, Earthlink, and a dial-up connection to another 56Kbps modem.

Keep Those Digits Rollin'

By Frank O'Connor

Courier V. Everything Corporate Modem

Average speed: 47Kbps

Any modem that describes itself as a corporate modem is one that should be treated with caution — you never know when it'll downsize itself for the sake of its shareholders. Obviously from the school of intimidating, monolithic, early eighties jet-blackness, the V. Everything's profile is not only hideous, it's also massive. It is in every way the Lincoln Town Car of the modem world.

Adding to its sinister corporate appeal are the type of options it offers. For the most part, they represent little to the home user, but small-office/home-office users may find the external dip switches useful. They allow you to do things like disable the modem's auto answer mode. A sliding volume adjuster is a nice addition.

This modem has been designed primarily for automated functions. It provides the most stable connections of any modem here, and will automatically re-establish a connection if the signal does drop.

Good automated support and an excellent online support site provide fine assistance. The phone service is okay, but among the busiest tested. Answers to fake problems were correct and quickly identified. If you really don't want to wait, there's an expensive no-hold 900 number. This would make sense for a someone with no time to spare, but otherwise it's the same service (as well as one of the reasons you'll be on hold forever on the toll-free number).

The Courier's price is even more daunting than its appearance, but if you want good security features and 24-hour operation, this is the choice.



rating



\$250, 3Com/U.S. Robotics

www.3com.com

847-262-5151



Scary looking and blisteringly fast



Scary looking and scary expensive

56K: It's Only a Rumor

You may be surprised to know that with these modems, you will never really transfer data of any sort at 56Kbps, because the government has limited telephone data rates to 53Kbps. So even if you get a 56Kbps connection, you're limited by FCC regulations.

There are other, more insidious factors that will affect the speed and quality of your connection. Perhaps the most relevant to Joe Public is the state of his phone line. If you think static is annoying when you're calling your sister in Iowa, you should try dealing with the kinds of problems it gives a modem.

A crackly phone connection means lost speed. Your modem and its software have to fill in the data dropouts and correct any errors caused by static, and it's this process that can knock a 56Kbps connection down to the more realistic 40s. The chances of ever breaking 50Kbps on a regular phone line are slim to none.

Remember that modems often must -

continued on page 20

Sportster 56K Faxmodem

Average speed: 45Kbps

U.S. Robotics, to its credit, helped pioneer the 56K modem standard with its x2 technology. The v.90 protocol that exists today was built from both Robotic's x2 technology and Rockwell International's K56flex technology. A number of ISPs, including AOL, still support x2 (AOL also supports v.90), but x2 is outmatched by v.90 in most respects. Most older x2 modems can be upgraded to v.90 via a flash-ROM upgrade. 3Com/US Robotics' new 56K Faxmodem supports both x2 and v.90.

The modem comes with the superb U.S. Robotics Connections software, which provides you with everything you need, including fax, modem, and Internet software (browser, e-mail, etc). U.S. Robotics gets great marks for build quality, but the Sportster's aesthetic design could use a bit of a revamp: It looks a little incongruous next to a new Mac.

As ever, U.S. Robotics has leading-edge technology, and you'll find strong, fast connections to almost any ISP — with especially pleasing results with AOL. A front-mounted power switch and a volume control are small but welcome additions. U.S. Robotics also supplies great documentation, a simple walk-through setup routine, and should worse come to worst, good phone and Internet support.

The Sportster is certainly a good combination of value and performance, and acquits itself well in this group.



rating



\$120, 3Com/U.S. Robotics

www.3com.com

847-262-5151



Familiar, quick, volume control



Slow support, weird, old case design

TelePort Internal 56K

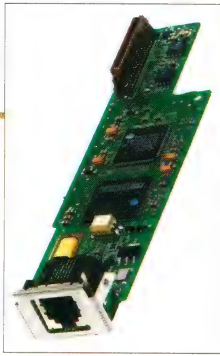
Average speed: 48Kbps

Imagine for a moment the horror of being a new blue-and-white G3 owner. At least iMac users could get online; most G3 owners probably don't have a modem to do that — the new G3 doesn't have a serial port with which to use an external modem, and you can only get an internal modem if you buy your G3 through the Apple Store.

Global Village's Teleport Internal 56K may go some way to repairing a G3 owner's shattered calm, because it's one of the simplest, most convenient internal modems yet devised. Its simplicity is enhanced dramatically by the new G3's open (literally) architecture. Pop open the side panel; unscrew the modem faceplate, plug in your modem, screw it tight, and bingo, you're in business. The experience is so pleasant and easy that it's almost worth repeating for guests (especially the ones who own PCs).

Installing the software for this unit is dreadfully simple too. The Global Village Installer is very fast and very clear. Best of all, the entire installation only takes up around 4MB. The fax software is dense with features, such as being able to send a fax at a specified time or automatically forwarding faxes. A clean and intuitive fax menu (with address book features) makes the fax process as simple as printing.

The Teleport's very stable connections tied for fastest in our tests, partly due to the fact that it is an internal model, but also because of the the new G3's improved ROMs and Mac OS 8.5.



rating



\$120, Global Village
800-336-2009
www.globalvillage.com

Great performance, simple installation

Not as simple as Apple's internal

download and deal with compressed files too, and this also affects operating speed. The baud rate (i.e., data transfer rate, expressed in bits per second) is not the only measure of speed: the new G3 for example, includes many bug fixes that make Web surfing more pleasant.

Tips and Tricks

First, make sure your Internet Service Provider is v.90 compliant. Then, make sure you have a nice, clean, noise-free phone line. Fax machines, phones (especially cordless phones) and other devices connected to the same phone jack can cause noise on your line and therefore add time to your connection. Some modems are a little better than others at filtering these distractions, but all will suffer from line noise. If you can, try to plug in your AC adapter as far away from the phone jack as possible — it too causes a fair amount of noise on the line.

Although all of these modems come with v.90 technology, each of them contains a flash-ROM chip that allows you to upgrade the modem's hardware just by downloading the latest software patch from the company's website. We recommend that you check for new patches from time to time, because they will fix bugs and improve performance.

Internal vs External

The thought of opening a computer can be off-putting to some, but internal modems

continued on page 22

Apple 56K v.90 Internal Modem

Average speed: 48Kbps

Easily the simplest of the modems reviewed here, the Apple Internal even edges out the Global Village Internal in terms of overall idiot-proof installation. Opening a G3 is a breeze — you just pull on a little ring. The Apple Internal Modem is shielded in a metal case, and like the Global Village unit, it just screws in. However, you can only get one of these preinstalled in a built-to-order system from the Apple Store, so you'll probably never have to install one.

A built-in communication cable must be attached, but unlike Global Village's unit, one end is hardwired to the modem, so there's one less part to deal with. If you've ever turned on your G3 for the first time, a setup assistant will guide you through some very basic instructions, but otherwise you just set "connect via" to Internal Modem in your Modem control panel. That's it.

The big downfall with this modem are its lack of both voice support and a pass-through socket for your phone. If you only have one phone line, you'll need a splitter. In part due to internal improvements in the G3, connection speeds tied for fastest here, and were very stable.

rating



\$100 (only available with new G3), Apple
800-795-1000
www.apple.com

Simple to install, invisible in use

Should be standard on all Macs

SupraExpress 56E v.90

Average speed: 45Kbps

Small, gray, and perfectly formed, the Diamond SupraExpress 56E v.90 is one of the prettiest modems reviewed here, but sadly it doesn't match your Mac (unless you have an older PowerBook). It proved fast and very stable. Connection speeds on AOL and Earthlink were in the mid-to-high 40s, and stability was fantastic: not one disconnect during the test period.



This modem boasts the simplest, clearest, and best voicemail features you can get with any software or device on the Mac. Supra VoiceMail is a completely useable answering machine.

The SupraExpress only has one failing, and that's noise. That warbling noise is especially irritating with this modem thanks to an overly loud speaker. Another teeny complaint is the fact that the status LEDs are located on the top of the unit, so they won't tell you anything if you have it sitting on top of your monitor or a tower residing on your desktop.

Upgrading the modem's flash-ROM is simple, because it uses an automated technology called BackWeb rather than the occasionally clumsy and mysteriously large upgrade wizards favored by some other manufacturers.

rating

\$120, Diamond Supra,
541-967-2450
www.diamondmm.com

Looks cool, hot performer,
good voicemail

Noisy, odd configuration

Smart One

Average speed: 41Kbps

The speakerphone version of this modem supplies a small but very important device: A microphone. Both modems come with Smith Micro's MacComCenter, a good, comprehensive, but dated package that provides voicemail, fax, and Internet utilities (see the review this issue).

The non-speakerphone version is identical, except for the microphone. However, the lack of microphone input and speaker output mean that it can't function as a complete telephony solution. Both models are literally slick — the shiniest modems available, for whatever that's worth. Both hit speeds in the low-to-mid forties, depending on phone line conditions. The clip-on microphone looks cool, but in practice, didn't pick up your voice unless you spoke directly into it.

Best Data has the best, friendliest, and smartest telephone support, with one slight caveat: It goes down at 4:30 P.M. PST. The support representatives we spoke with knew their answers by heart and gave them out with gusto.

rating



\$120 (with speakerphone),
\$110 (without speakerphone)

Best Data
818-773-9600
www.bestdata.com



Great service and good performance



Dubious speakerphone option



TelePort 56K v.90 External

Average speed: 45Kbps

Aside from the fact that its styling complements most desktop Macs perfectly, the Global Village TelePort 56K v.90 is a smart looking bit of kit. Small and neat to the point of near anonymity, it has just three operation LEDs, indicating power, connection status, and activity. The Teleport exudes a zenlike sense of calm — right up until it connects. This is one of the noisiest little modems around. You can (thankfully) disable the warbling, but you'll have to choose between awful noise and uncommunicative silence.

The modem comes with Global Village's superb GlobalFax fax software. The device itself operates well under most circumstances, and it was remarkably stable during artificially noisy phone line conditions. Other modems simply dropped the connection, but the error correction capabilities of the Global Village unit made it seem bulletproof.

The software provides a connection status indicator on your menu bar, regardless of which program you're using. It's distracting but useful, given that some disconnects aren't otherwise indicated. Telephone tech support is friendly and quick (though closed on weekends); we called during the busiest period and the phone was answered immediately. A five-year replace-or-repair warranty should also give you some peace of mind.

rating



\$135, Boca Research
800-336-2009
www.globalvillage.com



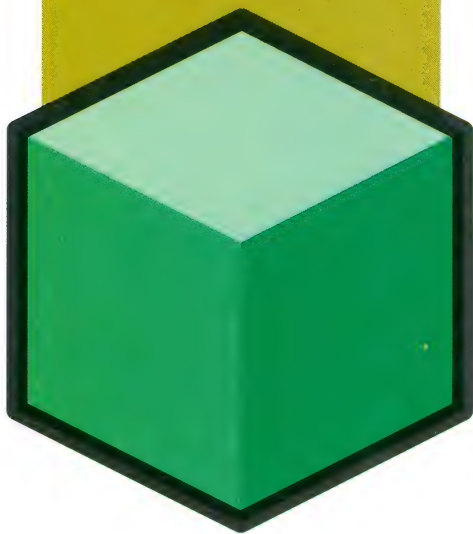
Great technology, good looks



Very noisy, no volume control



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FaxModem 56K Dualmode

Average speed: 41Kbps

The first thing you'll notice when you unpack your Zoom modem is that it's not exactly Mac friendly. Not only does it lack a cable to connect to your Mac, but it also comes with a smaller, weaker selection of software than the PC version. This is the only modem reviewed



here that required the purchase of additional hardware — something that isn't clearly marked on the box.


The Zoom software immediately conflicted with previous modem installation software (our fault for not cleaning house, but other modems didn't have any problems), so we called the consumer service line — busy signals continually.

But the Zoom modem is reasonably fast, reaching speeds of around 41Kbps. It's also very stable. The software offers good support for faxing and voicemail, and a power switch on the front of the machine is nice. It also has very good built-in surge protection and a seven-year warranty.

rating



\$100, Zoom Telephonics
www.zoomtel.com
800-631-3116

 **Utilitarian with good speed, good warranty**

 **No Mac cable included!**

are generally better than external ones. There are many reasons for this, but most of them boil down to convenience. They use less power, for one thing. Add to that the fact that there's no bulky, irritating power supply to deal with, and you already have two compelling reasons to choose an internal modem.

Speed is also a differentiating factor. Most internal modems will operate a little faster than their external counterparts because an internal modem is connected fairly directly to the CPU, and so suffers less interference. Better yet, this frees up an external port for another device.

Of course, external modems are relatively portable, and most come with a bank of status LEDs to show you exactly what your modem and phone line are doing. However, some internal modems will display a status bar on screen. All modems, internal or external, can be monitored using your Mac's Remote Access or PPP software.


You've Got a Great Baud

Deciding between modems isn't just a case of checking baud rates. There are numerous factors to take into consideration. First and foremost is internal versus external. If you have new G3, choose an internal modem. They tend to be faster, and they're certainly tidier. There isn't much difference between the Apple and Global Village internal units in terms of performance. The Apple modem is slightly less expensive, but unless you buy it

from the Apple Store (and only when you first buy a G3) it's not even an option.

The external modems are a trickier bunch, with more disparate pricing, features, and benefits. The best technically is the 3Com/U.S.

Robotics v. Everything. It's definitely a business workhorse, but it's ideal for home offices. The junior version, the Sportster, does most of the same things at a better price.

The Sportster, the Global Village Teleport External, and the Diamond Supra SupraExpress 56E v.90 run neck and neck. The Sportster has a volume control, but the Teleport has good fax software. However, the SupraExpress's voicemail features make it a brilliantly simple little device that does everything, garnering it a slim win. 

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Troubles

Your Internet Connection

By Alan Stafford

Is your Internet experience akin to a coin-operated bed in a cheap motel — great when it works, frustrating when it doesn't, and anger-inducing when it throws you off like a bucking bronco?

Most computer users' online experiences are fruitful, but some of us encounter trouble on the way to online fulfillment. Let's tackle a few common (and not so common) roadblocks.

Modem Won't Dial

A couple of things can prevent a connection. First, address the simple questions: Is the modem plugged in to your Mac's modem port, and is the modem's power cord plugged in to a working power outlet (if it's an external model)? Is the phone cord connected to the phone outlet and to either your modem or the phone port on your computer?

Is your Mac configured to use that modem? In the Modem control panel, click on the menu to select your modem. If your modem model isn't listed, you need to install a modem script for it, either from the software disc that came with your modem or from the modem manufacturer's Website. Without the proper script, the modem may not be receiving the right commands.

Check to see if AppleTalk is enabled

hooting



and configured to use the modem port. If it is, your modem won't work. Either disable AppleTalk or set it to use another port. Likewise, in the Modem control panel, make sure the modem is set to use the proper port. If you reset the port and it still doesn't work, zap your PRAM (hold down Command-Option-P-R while the machine starts up, and wait for the startup chime to ring a couple times). Then reset your control panels, including AppleTalk.

If your modem worked just fine a few minutes ago but it doesn't now, turn the modem off and on, or in the case of an internal modem, restart the computer. That will reset the modem.

Modem Dials but Won't Connect

If the modem dials but won't connect,

your hardware is probably fine; now, it's a software problem.

If the modem dials and dials without connecting, check the phone number for your ISP. If your ISP has an alternate number, try that; the primary number may be experiencing trouble. If you hear voices (from the modem, not your head), you've got the wrong number.

If it connects but you get a message that "authentication failed," check your user name and password in Apple's Remote Access or PPP control panel, or the FreePPP setup. In the dialog box that shows your connection status, you should see messages when your modem is attempting to connect, such as "sending password" and "authenticating." If the modem disconnects after one of these messages appears, the

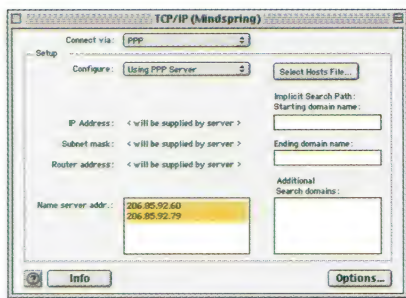
message may be a clue about what the problem is.

Occasionally you may have everything set up correctly and the modem still won't connect. In that case, trash the Remote Access, PPP, OT/PPP, and Modem Preferences files within the Preferences folder inside your System Folder; one of the files may be corrupt. Then restart the computer. Caution! Make sure you have all the settings written down before you do this, because you must re-enter them before you can connect again.

Modem Connects but Browser Won't Work

If your modem connects and your Remote Access, PPP, or FreePPP control panel reports that you're connected but you're stuck in neutral — your browser won't download any pages or it's very, very slow — check the settings in your TCP/IP control panel. The control panel should be set to use PPP (Point-to-Point Protocol), and the numbers must be exactly right.

If you've checked the numbers and they're correct, your ISP may be having a problem with its DNS (Domain Name Service). A DNS resolves a Web address (www.machome.com, for example) with its IP (Internet Protocol) address (157.22.143.10, in the case of MacHome). If the DNS can't match up your browser's page requests with the proper IP number, it won't find the page. Give it half an hour or so to fix the problem before you try again.



Make sure the numbers in your TCP/IP control panel are correct, or you'll have problems.

Connection Is Unstable

If your modem frequently disconnects inexplicably, a variety of culprits may be to blame, the most insidious of which are the quality of your phone line and the strength of the signal. All analog phone lines suffer some degree of line "noise," or interference, caused by things such as nearby electrical power sources, teething rodents, what have you. A poor-quality line with low signal strength suffers from so much interference that your modem can't compensate for the noise, so it gets confused and drops the connection.

You can test the quality of your phone line with TechTool Pro 2, a \$99 utility that also does disk maintenance (see the review, February 1999), or you can ask your telephone company to test it. Bear in mind that you're probably responsible for the wiring inside your home, so it may cost you to repair anything inside the walls. Also, most phone companies only guarantee adequate quality for voice communications, not data.

Besides rewiring the homestead, you can do several things to minimize noise and maximize signal strength. Install a new phone cord from your modem or computer to the wall outlet, and make the cord as short as possible. Don't entangle it with other cords, especially power cords. Make the modem the first device out of the wall — if you have a fax machine, other modems, or phones in the loop, make them follow the modem in the chain.

Your modem may also be the problem. Some modems are inherently more stable than others, but you can still take steps to make sure that the modem you have performs as well as it can. Having

the most recent firmware installed is most important. Firmware is a hardware chip inside the modem that holds code, and you can upgrade it with software that you can download from your modem manufacturer's Website. Manufacturers release firmware upgrades regularly to increase speed and make connections more stable.

Installing the latest version of Open Transport, Apple's networking system software, is a good idea, too. Open Transport is automatically installed with Mac OS 8.0 and later, but you still may not have the latest version. If you have OS 8.0, for example, and you haven't upgraded Open Transport since you installed it, you probably have Open Transport version 1.2. However, to upgrade to Open Transport 1.3.1, you must install the free upgrade to Mac OS 8.1. Mac OS 8.5 has an even newer version of Open Transport.

Frequent Busy Signals

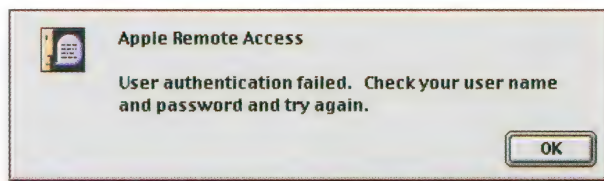
A busy signal is caused by only two things: a wrong number or a wrong

ISP. Most ISPs have converted all of their existing access ports to 56Kbps, but some may have some ports that are still v.34 (33.6Kbps). If you always get lower than 33.6Kbps, you're connecting to a port that's specifically for 33.6Kbps modem owners. You should get the correct dial-in number from your ISP.

However, during busy times, you can dial a 56Kbps-enabled number but get rolled over into a pool of 33.6Kbps ports. If that's happening often, your ISP needs to upgrade its ports. You'll know that's happening if you sometimes get 56Kbps-type speeds but other times get lower than 33.6Kbps. If your modem is only accessing 56Kbps ports, the speed differences won't be as dramatic.

If you're getting a connection speed between 33.6Kbps and 40Kbps, you are accessing 56Kbps ports, but you've got other problems. Check your modem script: If it isn't the right one, it won't allow your modem to connect at the optimum speed (or it will connect at the right speed but it won't report the speed correctly to you). Make sure you have

the latest firmware installed (see above). Also, test your phone line to see if it's capable of 56K: US Robotics has a dial-up number you can use



Internet service provider (ISP). If it's the former, check the number you're dialing. If it's correct and you're still getting consistent busy signals, change ISPs. Good ISPs rarely give you busy signals.

56K or 28.8K?

You've got a spiffy new 56Kbps modem, but your Remote Access or PPP control panel says your connection speed is much lower. What gives?

Nobody gets 56Kbps — nobody. With very quiet phone lines, a great modem, and optimum Internet conditions, you may approach that number, but probably not on a consistent basis. Most people get somewhere between 40Kbps and 50Kbps.

If you're getting lower than 33.6Kbps, you're probably not connecting to a 56Kbps-enabled modem port at your

that will tell you if you can get 56Kbps in your area (www.3com.com/56k/need4_56k/linetest.html).

Browser Crashes

One of the most common complaints about the Internet is the instability of browsers. Although browsers are much more stable than they were even a year ago, they still crash. Most often that's because you haven't allocated enough RAM to your browser — the default RAM allocation for Microsoft's Internet Explorer is less than 5MB. You can increase this number by single-clicking on the browser application's icon while the browser isn't running, then choosing Get Info from the File Menu. In OS 8.5, you should click on the tab in the Get Info box to get the Memory option. In the Preferred box, increase the num-

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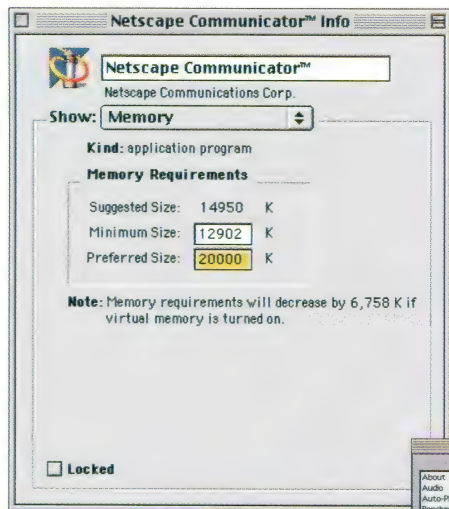


EarthLink™



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If your browser crashes often, increase its memory allocation in the Get Info window.

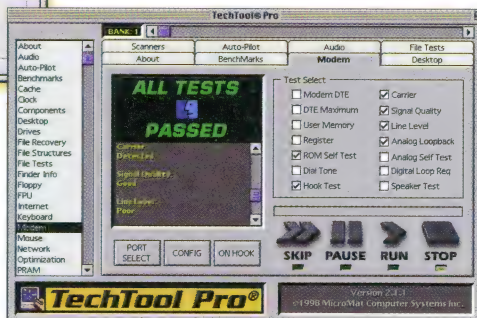
ber to 10MB, or more if you have spare RAM. If you have many plug-ins installed, such as Shockwave, increase the Preferred number by even more.

Difficult Downloads

If you receive a file via e-mail attachment that you can't open, consider who sent it to you. Was the person a Windows user? Macintoshes cannot open DOS files that end in .exe, because that file extension stands for "executable": in other words, the file is an application, and Macs can't open DOS applications. DOS machines can't open Mac applications, either.

However, you can open many other

files that originated on PCs with your Mac, including image files (JPEG, EPS, TIFF, and GIF), movie files (MOV, plus AVI and MPEG as long as you have QuickTime 3 installed), and text files (files ending in .txt or .doc). You can use your browser to open many of these files: Just drop a file's icon onto an open browser window. If that doesn't work, you must choose the correct application to open them. If



TechTool Pro 2 can tell you if your phone line's signal strength and line quality are sufficient.

you double-click the file icon and your Mac won't open the file, drop the icon onto an appropriate application: an image editor for image files, QuickTime's MoviePlayer for movie files, and a word processor for text files. You may have to take additional steps for some files, such as using an "import" command.

If you attempt to download a file with your browser but get a message

that the browser doesn't recognize the file, the file may be trying to use a browser plug-in that you don't have. Usually when the problem is the lack of a plug-in, you're given the option of going to a directory of plug-ins so you can download it. First, however, check your browser's preferences settings; it may be that you have the plug-in but your browser isn't configured properly to deal with it. Both Netscape Navigator and Microsoft Internet Explorer provide options for opening a file with the browser itself, a plug-in, or another application on your hard drive.

Here's an example: Either browser can display JPEG files, so by default your browser is set up to display those in its own window. However, neither can display TIFF images, so you should set your browser to choose one of your other applications, such as JPEGView or Adobe Photoshop, to open them. However, for Websites that display images and animation with Macromedia Flash, you'll want to set your browser up to use the Flash plug-in.

Connecting, Connecting

Troubleshooting your Internet connection may make you feel like you're dabbling in the black arts, but if you get things set right, it's like feeling the Magic Fingers for the first time. Now that hits the spot! **NIM**

"DenebaCAD shines – literally – at controlling surface reflections, transparency, lighting effects and other photo-realistic details... DenebaCAD also gives you more ways to handle freeform curves than MiniCAD™ 7 or TurboCAD™ 2D/3D 3.0..."

DenebaCAD 1.5

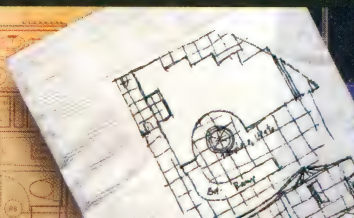
All great work begins

with a simple, powerful idea.

"DenebaCAD packs considerable value into this package, from more-than-competent drafting to the most impressive architectural rendering this side of \$1,000." *Macworld, February '98*

We couldn't have said it better ourselves. Efficient execution. Brilliant results. DenebaCAD.

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FREE DenebaCAD Evaluation Kit on the MacHome CD! Or call 800.7DENEBA or visit www.deneba.com/cadmachome/ for a kit.



This ad was created and color separated using nothing but DenebaCAD and Canvas 5.

We could tell you lots of nice things about **CANVAS™ 6.**

"The program's best features spring directly from Canvas's signature strength - the marriage of bitmap and vector technology... Deneba's SpriteLayers technology lets you create some interesting transparency effects that would be difficult if not impossible to make in a dedicated drawing program... We were also impressed by Canvas's new face lift, which helps your workspace stay better organized and perform more efficiently... In the competition of the graphics titans, Canvas 6 is fighting with a unique set of weapons."

Macworld — Feb., 1999

"With it's elegant interface, Canvas is a compelling alternative to suite-based solutions that require separate illustration and image editing programs to perform the same functions... Canvas has always performed well with technical illustrations, featuring extraordinary dimensioning capabilities and numerous precision drawing aids... The program warrants serious consideration from newcomers seeking an elegant and relatively inexpensive tool."

PC Magazine — Jan., 1999

"SpriteLayer technology represents an industry breakthrough because it allows users to apply an unlimited variety of compositing effects to any type of object or group of objects... [SpriteLayer] technology is an excellent piece of programming wizardry. With it, designers can easily experiment with complex graphic ideas that would have been prohibitive or impossible in any other program... Deneba has given designers a creative tool that makes it more convenient than ever to play around with any and all of their graphic elements in one place."

Digital Design & Production —

Jan./Feb., 1999

"Canvas 6 is sure to please faithful users..."

My favorite feature is Canvas's new SpriteLayer technology, which allowed me to control the transparency of any graphical object, text, photo, or vector illustration... Canvas continues to deliver a vast scope of graphics tools in one convenient application, and does a remarkable job of breaking down barriers between bitmap and vector graphics."

PC World Online — Dec. 28, 1998

But everyone else beat us to it.

"Deneba has done what Adobe

has refused to do: unify graphics apps... The vector abilities are very robust. Canvas has all the

"Version 6 has dramatically improved the software's interface, significantly increased user customization and added lots of useful features... Canvas 6 delivers power and versatility at a competitive price."

eMediaweekly — Jan., 1999

tools you'd expect of an illustration app, with bonus widgets thrown in... Canvas 6.0's unique ability to combine disciplines will lead the designer down previously inaccessible creative paths... SpriteLayers composite like no other program can."

Maximum PC — Jan., 1999

Find out for yourself why everyone's talking about Canvas 6 and the revolutionary new SpriteLayer technology. Visit www.deneba.com/machome/ to download a **FREE** fully functional 30-day evaluation kit. The graphics revolution is here, and it begins with Canvas 6.

Order today!



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This ad was created and color separated using nothing but Canvas 6.

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Something Wired

Rigging Up the Office for Online Access

If your home-based business uses a modem to connect to the Internet, you're not the only one. But if you're beginning to feel the pain of low bandwidth and your business is beginning to suffer as well, it's time to start looking into the various options for high-speed access.

The Dial-Up Connection

If you have a home-based business, you can get by with a dial-up connection and a 56K modem, but you probably already know the main limitation of this setup: When you're online, you can't use the phone. A second, dedicated line is the obvious solution, leaving you free to use the Internet as much as you want without worry, and the cost is merely that of another line. One option you might want to experiment with is using your telephone company's answering service. Depending on where you live, for about \$5 a month, a voice-mail system will kick in whether you're away from the phone or whiling away the hours online. True, it's not ideal; you can't talk and cruise the Web at the same time. But if you don't need to be glued to the Web for long periods of time, this might be a preferable arrangement to installing a second phone line.

If you want to stick with a single phone line but you want to add another Mac to your network, both Macs can in fact share the same modem over a network. This arrangement, although it's not at the cutting edge in terms of speed, could end up being much slicker than investing in a second modem and phone line, especially if it's unlikely that

two people will be online at the same time. IPNetRouter, by Sustainable Softworks (www.sustworks.com), is one piece of software that makes this possible; it costs about \$89.

Digital Connections

There is a budding group of digital services that provide much higher data-transfer speeds than dial-up connections, the most well

known of which are ISDN (Integrated Services Digital Network) and DSL (Digital Subscriber Lines).

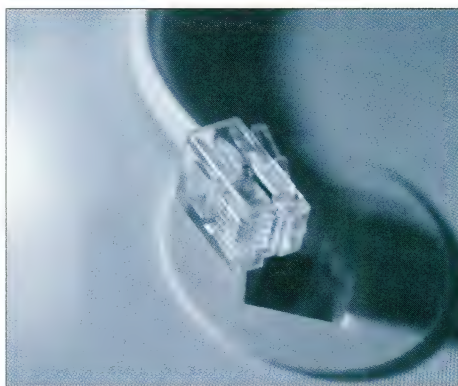
ISDN can support data-transfer rates from 64 Kbps to 128 Kbps, a good deal faster than a 56Kbps modem. Although it's digital, it's still a dial-up connection. Using a special terminal adapter, you dial in and wait for the ring, as with a regular modem. Most ISPs offer the service, and it's been around for a number of years. It can carry a voice channel as well as a data channel, so this eliminates the telephone/online conflicts that occur

with regular modems. Because it's digital, it requires special adapters on your side, and, as with any high-speed digital connection, your ISP has to support it. Installation (performed by your phone company) costs about \$100, and the adapter costs in the neighborhood of \$300. You'll get monthly charges from both your ISP and your telephone company. ISPs charge in the neighborhood of \$40 per month, and some charge hourly rates, typically under a dollar, on top of that. Phone companies charge

about \$20 a month for the service, plus more hourly fees.

Digital Subscriber Line (DSL) is slowly replacing ISDN, because it can carry data at much higher speeds — anywhere from 144 Kbps to a blazing

8 Mbps, and with DSL, you don't have to pay charges to both your ISP and your phone company. In addition, with a DSL you're permanently connected — you don't have to dial in, wait for the ring, and experience the occasional busy signal. Jim Linden of Slip.Net, an ISP in San Francisco, California, says that DSL opens up vast opportunities for the home office. "With DSL," he says, "the small office environment can now afford the high bandwidth typically enjoyed by large corporations." DSL is a general term, sometimes referring to "xDSL,"



meaning any kind of DSL, and it comes in many shapes and sizes, the most well-known being ADSL. The "A" stands for asymmetric, which means that the speed of uploading data to the Internet is different from the speed of downloading. If you're strictly a surfer, you won't need much bandwidth in the "upstream" direction, but if you need to set up your own Web server — for example if you want to set up an e-commerce site to sell products and services online — then the speed of uploading is very important. (For an extensive discussion of ADSL, see *Connections*, December 1998.)

A cable modem provides an interesting alternative — it uses the same line as your cable TV, and it's capable of speeds of anywhere from 2 Mbps in the upstream direction to about 27 Mbps downstream. You can split your TV cable, routing it to both your Mac and your TV. It costs about \$150 for the installation, about \$40 per month, and cable modems cost about \$300. Currently, the service is only available in certain areas, but major players like 3Com and Motorola are investing heavily in the technology. William Markey, director of marketing at 3Com, says that by next year, cable modem technology will be widespread. Similarly, DSL is not available in some less-populated areas.

Keep in mind that for all of these types of connections, you do have to share bandwidth with others, especially when data is travelling across lines owned by the telephone companies. So data will travel more slowly when there is more traffic on the lines. This is not

the case with T-1 connections, which are used by ISPs, and which can more or less guarantee an actual data transfer speed of about 1.5 Mbps, but this type of connection is much more expensive.

For the New Office

It's important, if you're moving into a new office or designing a new office in your current home, to plan out as much as you can of your finished office before you start bringing in the furniture, the Macs, and the peripherals. According to Sid Hughes, principal of Core Resources, which is a member of the Apple Solutions Professionals Network [see Sidebar], it's crucial to take care of the wiring as soon as possible. This means deciding not only where your AC and telephone jacks will go, but also where you want to put your Ethernet jacks and other outlets necessary for online access. This is especially true if your office expands to beyond one room. Hughes says that many of his clients have ended up retrofitting in order to accommodate such changes, such as adding an additional Ethernet hub onto an existing hub. This may not sound like the most horrible solution in the world, especially since you can pick up a small hub for about \$50. But the problem is that most of the cabling will be exposed, and if something should go amiss with the line that runs between the hubs, such as a tear or even a deep crimp, then you'll lose access to all of the machines on that second hub. "The best setup," says Hughes, "is to have all the peripherals connected to the

Help Is Here

If you're considering any of these options for high-speed Internet access, it would behoove you to begin by hiring a consultant. A Mac-savvy home-office specialist can help you assess your current and future needs, help suggest alternatives, and double-check the work of the electricians once your lines have been installed. Also, because not all services are available in all locations, they can give you the scoop on the resources in your neighborhood. The Apple Solutions Professionals Network is a formidable army of Mac consultants with diverse skills and specialties. To find a consultant in your area, stop by www.apple.com/aspn.

same hub — one with many ports that can accommodate a large network — and to store the hub in a central location accessible to the rest of the house, such as the basement." Then each of the Macs and peripherals can easily access the network from a nearby wall outlet.

Let it Flow!

With a little foresight and some help, you can set up an Internet connection to your home office that gives you the breeziest access to data while keeping headaches, retrofitting, and bottlenecks to a minimum. **III**

Type of Connection	Potential Speeds	Typical Monthly Costs	Typical Installation Fees	Hardware Requirement
Dial-Up — Modem connection over regular telephone lines.	14.4 to 56 Kbps (Depending on traffic)	\$20	\$20	Modem, @ \$150
ISDN — Digital Dial-up connection over regular telephone lines.	128 Kbps (Depending on traffic)	\$80	\$25	ISDN Adapter, @ \$300
DSL — Digital connection over phone lines.	144 Kbps to 8 Mbps (Depending on traffic)	\$100	\$300	DSL Adapter, @ \$300
Cable Modem — Uses the same cable as your cable TV.	2 to 27 Mbps (Depending on traffic)	\$40	\$150	Cable Modem, @ \$300
T1 — Digital connection over non-telephone lines	1.44 Mbps (Guaranteed)	\$1,000	\$2,000	Router, @ \$300

Big Browser Brouhaha

AOL 4.0 vs. Communicator 4.5 vs. Explorer 4.5

A Web browser is truly a window to the Internet's soul — without a browser, the ether doesn't have a very pretty face. Even though they're free, browsers have evolved into sophisticated pieces of software, probably because we use them more than any other kind of application besides e-mail.

The latest freebies, Microsoft Internet Explorer 4.5, Netscape Communicator 4.5, and America Online 4.0, are duking it out for the title of best browser. Let's get ready to rumble!

From the Look of Things

If you're going to be looking at the thing all day long, you want your browser to be aesthetically pleasing and easy to use. Netscape uses its tried-and-true big, simple icons for Forward, Back, Home, and other commands. If you click and hold on the Back or Forward icons, you get a pop-up list of sites you've visited. The icons in Internet Explorer also highlight when you pass the cursor over them, as will their text, but Explorer's icons are about half the size of Communicator's. The icons in AOL's browser are even more difficult to use; there are only a few of them, and they're tiny and unlabeled. But if you have MacInTalk installed, when you hold down Control and click on the icon, it'll speak what the icon does.

Explorer and Communicator allow you to customize their toolbars, moving them around, collapsing them, or inserting your favorite sites. AOL doesn't allow nearly as much customization, but it does

allow you to store sites in the toolbar. All three browsers have a central preference for default text size, but Explorer adds two buttons on its toolbar to manually increase or decrease the size of text on a page. That's very handy if you want to enlarge something for a few seconds. Just make sure you have the default text size set correctly, because using the buttons doesn't affect the master preference.

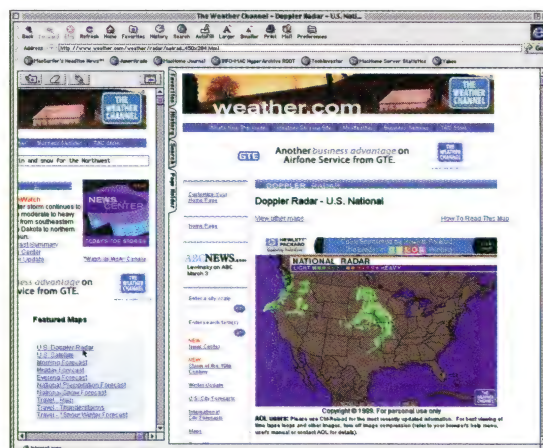
In the Heat of Browsing

If Communicator retrieves a new page and you move the cursor, the download progress display at the bottom of the window often disappears. So if a page is taking a long time to load, you're not sure if the browser is hung up or just thinking. Neither of the other browsers has that problem; Communicator has had it since version 4.0, and it still isn't fixed.

Sometimes Explorer will incorrectly display pages as very wide, but you can't scroll left to right, so you're forced to increase the size of the window. If you resize an Explorer or AOL browser win-

dow, images and text will either move if they can accommodate the new size, or they will remain in the same position. Communicator, however, always feels the need to check the site to see if something changed, which causes the page to redraw, making it blank or incomplete for several seconds or even longer with image-heavy pages. That's exasperating.

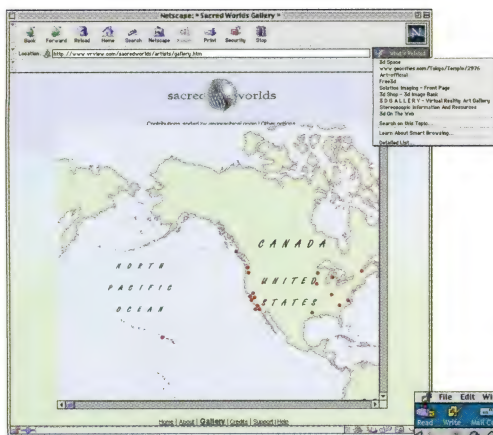
Also exasperating is Communicator's caching routine. All browsers cache pages, storing them on your hard disk so that if



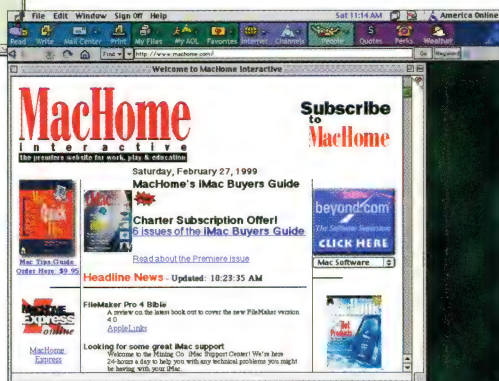
Internet Explorer's page holder function worked fine with this page but choked on most others.

you revisit the page, the page is retrieved from the cache instead of being reloaded from the Internet. Unfortunately, Communicator is very slow to retrieve cached pages. Explorer and AOL load them much more quickly, but don't always recognize when a page changes, in which case you must reload manually.

Explorer still has the little helper tabs at the left side of the screen from its version



Above: Communicator's What's Related button shows you sites similar to the one that you're viewing. **Right:** With AOL 4.0, the browser shares controls with the master interface.



4.0 update, and they're wonderful. Click on the tab and a small window comes out from the side of the screen, displaying your favorites (bookmarks), a history of sites you've visited, search sites and results, and a new feature called a page holder. You can store a page inside the mini-window, then you can use the page as a master page for visiting other sites. However, for many of the sites I wanted to use it for, all I got in the page holder was an error message.

Explorer can store up to 999 URLs by date, a feature that's not available with AOL. Communicator has a Go menu that tells you where you've been, but when you quit the application, it forgets. Communicator's new What's Related toolbar button shows you sites that are similar to the one you've loaded. It works pretty well, but it won't return any results until the page is done loading.

Many of the options you'd get with Explorer or Communicator aren't available in AOL: You can't view the HTML source of a page, import bookmarks from another browser, or browse pages off-line. But to its credit, like Explorer, it does offer ColorSync, so you should be able to see images in their exact colors on the sites that also use it. Microsoft introduced ColorSync into Explorer in version 4.0.

Waiting for Reply ...

Can a browser be a factor in download speeds? Explorer eked out a tiny advantage in Web page downloads, but average

file download speeds were about the same. Explorer can occasionally resume an interrupted file download, but the option isn't always available. AOL was slower downloading than both, even though by default it's set to compress images so they download more quickly, which trades in a bit of image quality. Explorer offers a similar setting, but that feature is turned off by default.

Other Niftiness

New kitchen-sink items in Explorer include some smart printing assistance. Using an Office 98-like print preview window, Explorer will shrink pages to fit, crop them, hide backgrounds (if a background is dark, it can suck up all your printer's ink), and omit images to make pages print like real documents. It works well.

Also, by clicking and holding on a small button at the end of one toolbar in Explorer, you can summon Mac OS 8.5's Sherlock, summarize a page to the Mac's clipboard, or find similar Websites — all without leaving Explorer. Nifty, indeed. And Explorer is "self-repairing": If you accidentally delete one of its necessary files from the Extensions folder, Explorer will reinstall it from a hidden stash.

All three browsers offer auto-complete: Type in part of a URL you've visited before and the browsers will fill in the rest. AOL's address window is a bit frustrating: If you type in an address, while it goes out and looks for the new page, it reverts the address window to the currently displayed page, so you think it isn't working. If you make a typing mistake, it redisplay the previous page, so you have to type the whole

thing in again. Explorer also offers automatic form completion in addition to auto-completing URLs. You fill in your name, address, and other personal information only once, and with every Web-based form you come upon, you only have to type in a letter or two before the rest of the line appears.

I'm Just Browsing

Explorer emerges from the fracas as the clear victor. Communicator is a little prettier, but Explorer's much better caching ability and its sockload of features make it a more functional tool. AOL's browser, while benefiting from some of Explorer's expertise, is too stripped down to bloody either of the stand-alone contenders. Still, this latest version is a quantum leap ahead of its predecessors.

But you can try any of these browsers for free — though you'll have to sign up with AOL to try its "free" browser. And you can use Explorer or Communicator with an AOL connection, as long as you first connect with AOL. **III**

rating

Internet Explorer 4.5

Free, Microsoft
www.microsoft.com/mac/ie
PowerPC Required



Quick cache retrieval, nifty features



Page holder function not so hot

rating

Communicator 4.5

Free, Netscape Communications
www.home.netscape.com
PowerPC Required



Pretty face, What's Related function is useful



Slow caching, pages reload when resizing

rating

AOL 4.0

Free (with service), America Online
www.aol.com



Quick cache retrieval, substantial improvement over earlier versions



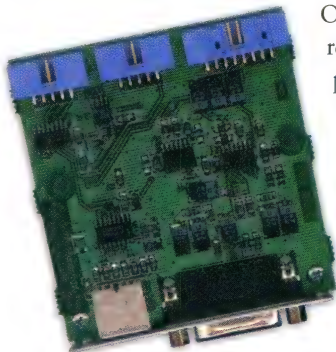
Slow, limited features

iPort

You know that mysterious rectangular door that lies beneath the USB ports on the original issue Bondi

Blue iMacs? The iPort fills this space with two very useful ports that iMacs lack: a serial port and a monitor port. With a serial port, you can connect to many of the "traditional" Mac peripherals that don't have USB, including printers, digital cameras, and MIDI devices. With a monitor port, of course, you can plug in a second monitor.

Because the iPort is integrated into the innards of your iMac, it requires some heavy-duty, roll-up-your-sleeves installation. But if you have a clean work surface, a Phillips-head screwdriver, and a bit of patience, you can do it. Just be sure to keep the screws organized when



you take them out, use an anti-static cord (the iPort doesn't ship with one, but you can pick one up at any computer store), and don't do anything that might damage the motherboard.

Once it's installed and you've rebooted with its control panel in your System Folder, the iPort's serial port behaves just like any other serial port. I used it with a variety of printers, and found that it wasn't any slower than a Mac with a real serial port. I got similar results downloading images from digital cameras. But the most fun I had with this little gizmo was plugging in my MIDI keyboard. As of press time, a serial adapter is the only way to accomplish this feat. Soon, MIDI will work over USB, but hey — this saves you a port.

For video, it works well. You can plug in a big ol' 21-inch monitor if you want to, for resolutions of up to 1,600 x 1,200. But you won't get an extended

desktop — everything on your iMac monitor will be mirrored on the second monitor, and only at 640 x 480 and 800 x 600 resolutions. But for presentations, you could sit with your iMac facing you and plug into the house's video projector. Now wouldn't that be ultra-slick?

The Final Decision If you want to connect to serial devices and you have an original iMac, you might want to set it up with an iPort — it will greatly expand your options. And who knows? You might want to plug in a second monitor some day, and that'll be an added bonus.

— David Weiss

rating



\$80, Griffin Technology
615-255-0990
www.griffintechology.com
Original iMac Required



Provides serial and monitor ports for the iMac



No extended desktop capability, no anti-static strap included

Poser 3

Anything you can do, Poser can do too. With Poser 3 from MetaCreations, you can produce 3D illustrations and animations of people walking, dancing, exercising — you name it. Use your creations to supplement other graphics and animation programs, or incorporate them into multimedia projects.

Poser 3 has a library of new models of both genders, which come in a variety of dress and ages, and it offers a selection of animals as well. The interface is facile, with a clean, true GUI (graphical user interface), so very few key commands are needed. But beyond this appearance of simplicity, the program runs deep. The



manual is excellent and as thick as a romance novel.

Using "inverse kinematics," a 3D technique for emulating realistic human movement, the program allows you to move figures with precision. Set up a pose, change the time, set up another pose, and Poser 3 fills in the gaps for you, making your animation fluid. The rotation trackball tool is extremely effective: Creating a discus thrower in motion can take a matter of seconds. A wide selection of editing tools lets you hone in on specific body parts to create movements as broad or as subtle as you can imagine. Your animated figures can be saved as QuickTime movies or AVI files.

My first run-in with Poser 3 was a little frustrating, however: After contorting a poor female figure beyond recogniz-

ability, I simply had to abort — there was no getting her back to anything bearing semblance to a human form. But things started looking up on my second try, when I learned to use the tools as they were meant to be used — that is, delicately, and with a fair amount of patience.

The Final Decision If you need to create lifelike models or animations, Poser is a good place to start, but plan on spending some time with the manual and the program. 3D animation, even with a program as well designed as Poser 3, is no day trip.

— Anne Marie Feld

rating



\$190, MetaCreations
800-472-9025
www.metacreations.com
Power PC Required



Great selection of 3D modeling tools, great selection of models



A bit tricky to pick up

Ray Gun 1.2

It's never too late to get with the '90s. And that means burning your own CDs. Your old record collection, rife with classic albums from Journey, Poco, and Firefall, seems like a perfect candidate to convert to CDs. There's one problem, though: Because of misuse during your irresponsible youth, many of these platters are not exactly in cherry condition.

Clean the records all you like, but if they're scratched, you're still gonna hear some crackles and pops. Enter Arboretum Systems's Ray Gun audio restoration software. Ray Gun takes aim at these and other noises in a fairly simple program that minimizes noises other than the actual music. You can also use it on noisy tape recordings. But be forewarned that you'll

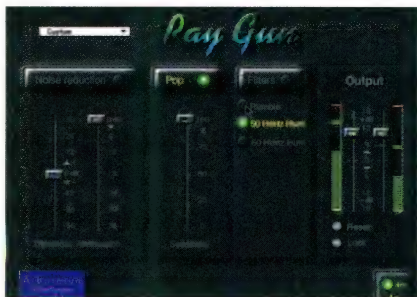
need a 120MHz processor or faster in order to run this program.

Working with a heavily scratched snippet of Marvin Gaye's "Let's Get it On," I immediately found that audio restoration

is an inexact science at best. Ray Gun gives you several controls — Noise Reduction, Pop, Filters, and Output — to get the best mix. You can adjust the level at which Noise Reduction kicks in as well as the amount that the music signal

can be reduced without distorting. The Pop control helps filter out those annoying clicks and pops from the scratches, and the Filters section helps remove low rumble noise and background hum, which are caused by interference.

I found Ray Gun easy and fun to work with, but it was also a challenge. Getting rid of crackles is the objective, but tweak too much and the rest of the music sounds muddy and listless. Some presets



are included for "de-pop," "de-noise," and other tasks, but my own settings worked best for me. It's trial and error all the way here; fortunately the program is versatile enough to work with many types of music. In my case, the Noise Reduction and Pop controls were most effective; the Filters had little effect.

The Final Decision Ray Gun does a good job of minimizing noise, but it won't make your records sound brand new. Pops and clicks don't go away completely, but they do get much quieter, so this is a useful program for anyone serious about restoring their albums on CDs.

— John Poultney

rating	★★★★
\$99, Arboretum Systems 800-700-7390 www.arboretum.com PowerPC Required	
👍	Versatile, easy to use; provides real-time preview mode
👎	Doesn't eliminate noise as much as reduces it

CompactFlash PhotoReader

Simple Technology's CompactFlash PhotoReader USB is designed to read compact flash cards — the little removable memory cards you find in digital cameras. With such a reader, you don't need cables; you just put in the card and it should pop up on your desktop, just like a floppy.

A floppy? Hmm, you say: The iMac doesn't come with a floppy drive. Apparently, Simple Technology doesn't know that, because it ships the reader with a USB driver on a floppy disk. That wouldn't be such a problem if the driver were also available on the Internet, but it isn't. No Mac files are available for download.

We tried the card reader with two iMacs and a blue-and-white G3, and

had no end of problems. Installing the USB extension and turning on the reader made both machines crash. After 20 minutes on hold with tech support, we were told that the Mac guy was "out for the day," but that we didn't

need a USB driver. The tech support person instructed us to wait until the computer booted and "the window comes up — or whatever you Mac people call it," before turning on the card reader.

Having been put in our place, we meekly followed his

instructions, but the card still wouldn't mount on the desktop, and the machines subsequently crashed.

After reinstalling system software and every update we could find, we still couldn't get the card to mount. Finally, after removing all extensions except the phantom USB driver, it mounted. We even transferred some image files —

7.3MB of images transferred from the card to the iMac in 30 seconds, which isn't half bad. Unfortunately, some of the images were corrupted. It wasn't the cards' fault — they downloaded intact to another machine.

Another call to tech support got us the same message: The card doesn't need a driver, and no one knows about software for the Mac. An e-mail request to tech support went unanswered.

The Final Decision It's one thing to ignore the Macintosh market; it's quite another to pass off products as being Mac-compatible when it's clearly an afterthought.

— Alan Stafford



rating	★
\$130, Simple Technology 800-474-6753 www.simpletech.com USB Required	
👍	Fast when it works
👎	Unstable, corrupts images, clueless tech support

Details 2.01

You need to find out who did that special project for you last year, so you pore through the file cabinet or Rolodex trying to find the name. Or, the printer has the material for your new ad; now when was it due? You don't need to pull your hair out by the roots — AEC Software's Details is a product information manager that can help you to keep track of these items without a lot of fuss and bother.

Details is designed to integrate all of your information. So it not only gives you records of your contacts, it also helps you trace who is working on what and when it's due. AEC provides an assortment of templates that you can

easily adapt to your particular business, so along with contacts, you can keep track of letters, expenses, and all the other details of business. And once you

enter all your information, you can bring up every little piece without having to page through a complex layout. You can search by many different criteria, which makes it simple to locate only the information you want. Though it's powerful, the pro-

gram takes up only about 12MB of disk space, and it runs on older Macs, as long as they can handle System 7.

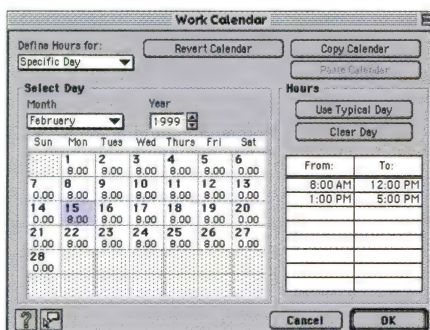
Unlike AEC's FastTrack Schedule (see *MacHome*, January 1999), it's not designed for advanced project management duties such as viewing and modifying the interdependencies of tasks within a project. But you can use Details to plot start dates and end dates, and

you can view this information in a Gantt chart, which represents time as overlapping bars.

If you are forced to deal with the Windows environment, you'll find the Windows version to be nearly identical, and you can easily swap files back and forth between platforms. It would be nice, though, if Details supported AppleScript; it's tailor made for it, but that isn't expected until a future version.

The Final Decision Details is a very well designed information manager for the small business. It will definitely help you empty that old file cabinet.

— Gene Steinberg



Kai's Power Tools 5

Kai's Power Tools — those words mean creative power for those who use plug-in filters for programs such as Adobe Photoshop. And the new version lives up to the billing.

Photographers and illustrators will love the way it helps alter the look of an image and add (or remove) depth, emotion, and power. There are an infinite number of ways to create radical permutations with any image via KPT's filter controls. Web designers can take advantage of its vast array of tools to create striking images for Websites, such as navigation buttons and special effects for display text.

The new FiberOptix effects create stringy text, or vines draping from elements in an image, and every fiber is a

separate 3D object. Similar to Paint Alchemy's older Bubble Brush, the Orbit effect produces from one to a million objects, such as bubbles, raindrops, or lenses. You control the density, color, and lighting for myriad mutations. The ShapeShifter creates objects with refracting glass edges or metallic surfaces, and they work especially well as Website navigation buttons and glitzy display text.

The only negative that I can see is Kai's insistence to try to top himself in the interface department. Although for the most part this version is highly intuitive, there were aspects I found baffling. In the previous version, it was easy to choose a preset texture in a "texture explorer," but in version 5 you have to access features hidden in an area called "Frax4D" at the

bottom left of the screen in order to load any presets. MetaCreations once again skimps on the user manual, which could have been much more detailed, because the controls are so many and so varied. And at \$199, it's not exactly cheap as filters go.

The Final Decision KPT5 is a powerhouse collection of filters that offers a new way to create and manipulate images on your computer. Despite the high price tag and one or two downsides, it's fast, stable, and virtually unlimited in its uses, and I think it's well worth the investment.

— John Manzione



rating

\$199, AEC Software
703-450-1980
www.aecsoft.com

Convenient templates for fast setups without a long learning curve, near-identical Mac and Windows versions

Doesn't offer special support for Mac-only features, such as AppleScript

rating

\$199, MetaCreations
800-846-0111
www.metacreations.com
PowerPC Required

Infinite number of filter variations, fast, and somewhat intuitive

A little pricey, interface sometimes confusing, thin user manual

Zip 250

Iomega's 250MB Zip is similar to its predecessor, the 100MB Zip Plus, in that it can connect to either a SCSI or parallel port, it has an on/off switch, and it works at about the same speed. But yes, it has 2.5 times the capacity. Good eye! It also comes with additional software for recording and playing music and backing up files.

Performance-wise, it's a little better than the Plus — using the old-style 100MB Zip media (which also works with the Zip 250), I copied a 34MB file in about 38 seconds on the Zip 250, compared to 45 seconds on a Zip Plus. Using the new 250MB disk improved the transfer time slightly; I shaved about 6 seconds off this task.

The new drive continues Iomega's tradition of innovative design; this one sports rounded casing and a combination power/activity LED. But you can only set the SCSI ID at 5 or 6 — I wish they'd change it so you could select an ID from 0 to 7, as you can with most of

the other SCSI devices out there.

Now this may sound persnickety, but when you eject disks from the Zip 250, it doesn't gently nudge them out halfway, as previous Zips did. Rather, it flings them from the drive with an appalling ferocity — enough to hurtle them several feet. One time a disk landed in my garbage can, only inches away from a half-finished container of venison-pesto ratatouille. A close call, to be sure.

The Zip 250 is a decent performer, but unless you routinely work with files larger than 100MB and you need fast performance for video, audio or animation, you might want to consider the benefits of a CD-R or CD-RW drive instead. Though they write more slowly, these let you store about 650MB per



disk. CD-R drives cost just a little more than the 250MB Zip, but CD-R media is much cheaper — around \$2 per disk compared to \$17 each for the Zip.

The Final Decision

The Zip 250 works just fine, and it has a stylish design like most of Iomega's products. Just make sure it suits your needs, in terms of capacity and the cost of media, before buying one.

— John Poultnery

rating



\$200, Iomega
800-697-8833
www.iomega.com

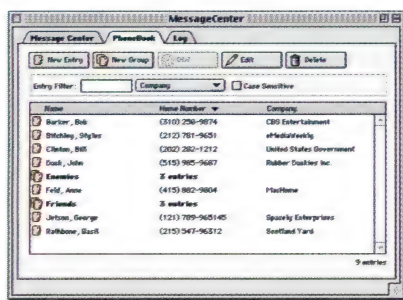
Good performance, nice design, works with earlier media, includes one cartridge

Expensive media, limited to SCSI ID 5 or 6, flings disk badly

MacComCenter Plus

Swamped by home-office telephone problems? Need an all-in-one solution to take care of faxing, voice mail, and call logging? MacComCenter from Smith Micro might be a solution for some.

MacComCenter has plenty of options, including integrated address books and audio editing to clean up recorded voice mail messages. You can drag and drop faxes using the blessedly simple Drag'n Fax software. All you have to do is drag a document to the Drag'n Fax icon and it will open the application (Word, for example) and a Fax/Print window — without having to switch printers in the Chooser menu. Incoming faxes can be



automatically translated to text using the included OCR software, and voice mails are saved in a simple list, with caller ID information if you have that as part of your regular phone service.

Smith Micro supplies a very clear, easy-to-use manual with MacComCenter, which is a good thing, because unfortunately you'll be using it often. The bits of software that the suite supplies are scattered around, and each of them is separate. There's really

no simple-to-use central hub to launch all of the individual applications from. And the software can sometimes be far from intuitive. Making a standard fax cover letter sounds easy, but in reality it was a frustrating and fruitless experience. It was far easier to import one from Word.

To take full advantage of all the features, you'll need a modem with fax,

voice, and caller ID features. Also, if you have a reasonably modern modem, it probably came bundled with many of the utilities that MacComCenter provides, and many of these applications (fax software, for example) are even available for free on the Internet.

The Final Decision MacComCenter provides many features, but the simpler ones are available for less of an investment, and the more powerful ones aren't integrated. With a console-oriented redesign to provide a central starting place, MacComCenter could be much smarter and much more usable.

— Frank O'Connor

rating



\$100, Smith Micro
800-964-7674
www.smithmicro.com

A comprehensive suite of software with all the right bits and a host of customizable utilities

Software feels and looks dated, most of these utilities are available from other sources and often for free

Mixing Business and Pleasure

The Epson Stylus Color 900 **By** David Weiss

Epson imagines two kinds of consumers: artists and business people. For the artists, who need the finest color and consider it worth waiting for, it produces the six-color printers, such as the PhotoEX. For business people who still want color but need it yesterday, it produces the four-color printers such as the Stylus 850.

But its latest “business” printer, the Stylus 900, is likely to please everybody.

The Basics

The Stylus Color 900 is larger than its predecessor, the 850, but it uses the same basic configuration as most of Epson’s inkjets — you load paper into a tray on the top, and your prints emerge in a tray at the bottom. Both input and output trays extend outwards from the body of the printer, and you can fold both away when you’re not using them. Both trays can telescope to accommodate up to legal-sized paper, and you can adjust the width of the input tray to accommodate narrow formats, such as envelopes.

The 900 provides both serial and USB ports — a thoughtful gesture that makes a reviews editor feel all warm and fuzzy inside. All Macs can use the 900 right out of the box, be they the humble pizza boxes that helped make the Mac what it is today, or the spiffy new iMacs and zippy new G3s that are taking us into the future.

Getting Down to Business

Inkjets are not known for their speed, but the 900 is probably the fastest to date. The 850, at its fastest setting, was able to shoot out a page of black text in about 40 seconds, which is considerably faster than the PhotoEX, which needs about three and a half minutes to accomplish the same relatively simple feat. The 900 can spit out such a page in

about 20 seconds. The 900 cranked out a colorful page from a QuarkXPress file, containing text, a photo, illustrations, and lines, in two minutes, while the 850 took almost five to produce the same page. The only disappointment I felt was that even with its speed, on high-resolution photographs using the highest settings and the best quality paper it was only about as fast as the 850.

The Images

However, the image quality of the 900 is profoundly better than that of the 850, and it even comes close to rivaling the PhotoEX. Epson accomplishes this by shrinking the size of the dots. In fact, you have to look very closely in order to see them. Epson improves the speed by creating a wider variety of dot sizes — so solid colors can be rendered with big dots, saving time, while blends and subtle shapes can be rendered with tiny dots. Unfortunately, the text quality is not proportionately better with the 900. Although the text looks good and pretty smooth even at the highest speed setting, it’s about the same as the quality of

the 850. With the decreased drop size, I had hoped the text would be sharper.

Media

The main limitation of color inkjets is that the cartridges are so expensive. And unfortunately, the trend continues with the 900. The color cartridges cost about \$40, and their expected yield is about 570 prints. The black cartridges cost about \$33, and are expected to yield about 1,200 prints.

Networkability

For an extra \$200, you can purchase an Ethernet card that enables the 900 to print over a network. It’s an easy upgrade, and it’s worth considering; if you have a small business, or even a second printer, it’s quite handy for the printer to be accessible via the network, so you can easily choose between it and other printers.

The Final Decision If you’re looking for that elusive compromise between color and speed, check out the Stylus Color 900. This new Epson produces some slick-looking images, and it’s the fastest in the pack. **III**



rating



Stylus Color 900

\$449, Epson
800-463-7766
www.epson.com



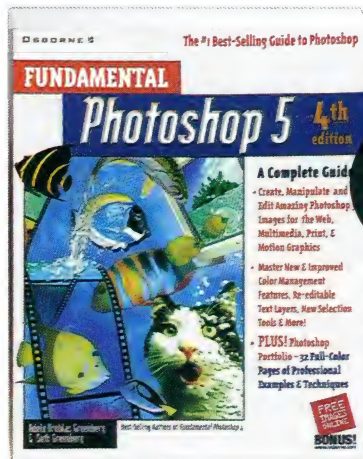
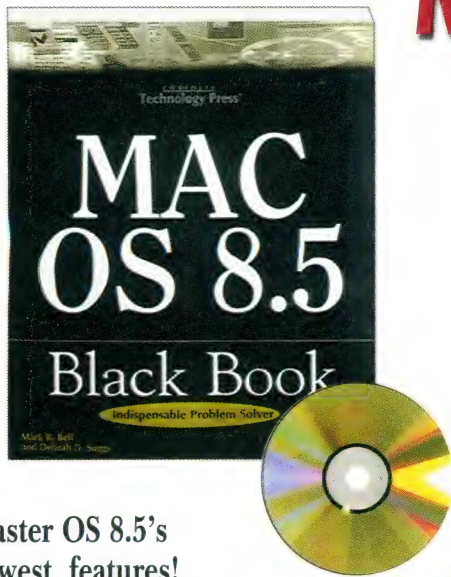
Fast, quiet, brilliant output



Disproportionately slower on hi-resolution photos, text not sharper than predecessors

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AFF6

Hotline: The “Other” Internet

A Server in Every Computer, for Better or Worse

Nothing is what it seems. The Web is not the Internet, nor is the Internet the Web. The Web is a graphical subset of the Internet; it just happens to be the best known. But there's more to the Net, if you look deeper.

The Internet started off as a way to connect governmental, scientific, and educational institutions, but it has since mutated into a mass-market communications infrastructure. Alternatives to the Net have been proposed (such as Internet II, a network that would only be open to educational users), and some say Web browsers are being pushed beyond their original purpose of displaying information.

To combat this situation, a couple of sprightly companies, most notably Hotline Communications of Toronto, Canada, are reaching back to the pre-Web days to providing alternatives to an increasingly commercial scene. Hotline's solution is to combine several popular online functions — news, chat, and file transfers — into one compact program that's used by scads of private users on private servers, which Hotline refers to as “communities.” These servers offer information, software, and many types of multimedia files, including MP3 music files.

“Hotline's like the Wild West of the Web,” said Leander Kahney, an editor at Wired Digital in San Francisco. “You can find a lot of the same stuff that's hard to find on the Web, but without all the commercial annoyances.”

Hotline proponents say the setup provides an Internet experience free from

the hype and rampant capitalism that typify most Web-surfing journeys today.

File transfers are much quicker — Hotline estimates about 30% to 40% faster — than normal Web connections which use the HTTP and HTML protocols. Both Hotline and its main competitor, Carracho (see sidebar, “Carracho the Contender”) use proprietary file-transfer technologies for the speed boost.

Shareware providers such as Mac Gamer's Ledge and Ambrosia Software serve up healthy amounts of software over their Hotline connections. The AppleShareIP site lets you upload files for backup at 10 cents per MB, while the MacResource server and others of its ilk provide copious amounts of software and documents of interest to Mac users — including some system software, updates, and even a few hard-to-find technical repair manuals — making these destinations a good alternative to Apple's crowded and downright poky Web servers.

Everything Old Is New Again

Hotline uses a tried-and-true approach that was employed in the pre-Web 80's and early 90's with Bulletin Board Services (BBS) — one that lets literally any computer act as a server, without your needing to register a domain name.

A short history lesson is in order: These days most consumers head straight to the Web for their information, entertainment, and communica-



tions needs. But before the Internet caught the public fancy, an extensive network of text-based BBSs provided many of the same services, minus the visual panache of the Web (BBSs are still around in limited use). Usually these services catered to specific interests, such as photography, electronics, or social activities, and tended to be operated by people interested in those areas who wished to share their expertise or information with a like-minded crowd.

Early BBSs used a dial-up modem connection, with each service having a

dedicated phone number. In the early days, BBSs were usually accessed through terminal emulation software and had fairly crude text-based interfaces which could be transmitted quickly over slow modems. Eventually, graphical interfaces were added through a system called First Class, which used client software on the end user's computer, and corresponding BBS server software. This setup made it possible for BBSs to provide graphical interfaces, like today's Web pages.

Hotline's concept today is similar — client software for end users, and server software that helps dish up the data. The server software also maintains discussion boards in a more linear fashion than standard mailing lists and acts as a repository for files.

Hotline piggybacks on a user's Internet connection, using the same PPP (point-to-point protocol) connection used to hook up with an ISP (Internet service provider). You can run a browser at the same time you're using Hotline — convenient because some Hotline servers will direct you to standard URLs from time to time. On the Mac, the software does not use TCP/IP but rather Apple's underlying Open Transport; it also supports Internet Config.

Typical search engines don't apply to Hotline; instead you peruse a list to tell you which servers are active at a given time. Because they may be the owner's primary computer, some Hotline servers are online for only a few hours at a time. There are a few Web pages that let you search Hotline, however, and tell you which ones are currently online (see sidebar, "Online Resources"). You can bookmark your favorite servers for faster access, just as you would with Web pages. And there are specialized Hotline servers called "trackers" that list which servers are online or offline, and what sort of content they contain. These are intended mainly for use by administrators, however — you'll get by just fine with the client software unless you want to set up your own server.

The Hotline client provides a toolbar for basic functions: connecting and disconnecting from a server, participating in chat sessions, posting articles for

discussion, getting or uploading files, and monitoring your activities. Some servers, by the way, welcome all users, while others require a user name and password. Others have varying degrees of access, letting you chat, for example, but not download files.

The client software has remained virtually unchanged since its initial release in 1996. However, in late February the company released a preview release of an improved version. Admirably, the company's initial software was for Macs, not Windows, but it has recently turned its development efforts toward that other platform. The new release will address some shortcomings of the original software, providing graphics previewing and better implementation of news and chat functions. Some in the Hotline community attribute the new version's delay to Windows development efforts or to a difficult legal situation with Hotline founder Adam Hinkley, who left the software's source code encrypted (locked) when he departed from the company last year.

Hotline is used in private companies as an alternative to the old FTP (file-transfer protocol) system; it's said to have better security and faster performance. Mickey Levine of Nicely Done Solutions, a Mac consultancy in Albany, California, is setting up a publishing client with a Hotline server for expediting transfer of editorial files and images. "I've always been impressed with the Hotline's speed and security, as well as its small memory requirements," she said. "I told the client to use it mainly for the security, however."

Surfer Beware

Because Hotline allows servers to circumvent the expense of registering a standard domain, anyone with an Internet connection can use his or her machine as a server. This expands the availability of connected resources — the Net's grand vision — although some detractors say services such as Hotline, because their servers are anonymous, are leading to increased software piracy and distribution of copyrighted or potentially offensive material.

Indeed, new users should be fore-

Carracho the Contender

A competitor to Hotline's kingdom has arisen, and it is Carracho Communications. This company has released a preview version of its Carracho Client and Carracho Server software, and the alternative online community is eager to see what it will bring. Though Carracho lacks the extensive network of trackers and servers that Hotline boasts, initial comments are enthusiastic. "This is the future of Hotline," writes one server user; others say Carracho looks good but doubt the community will get behind it the way it has for Hotline. Pricing and final availability have not yet been announced.

According to the company, the Carracho client will let users perform many common tasks from a single window, rather than from the hodge-podge of windows used in Hotline. Additionally, such niceties as threaded news discussions and drag-and-drop file uploading should make this a popular piece of software. It will also let users connect to more than one server at a time, highlight URLs in chat and news, and provide info on other connected users. E-mail functions aren't planned in the first version, Carracho said it will add them later.

On the server side, Carracho says its software will let users maintain a fully operational server even while using other applications. The company is also developing a server tracker.

Hotline's Jason Roks says that Carracho's doing a decent job, albeit at Hotline's expense. "They've been watching to see what our users want and have taken some of our ideas," he said. "Let's just say I'm glad they're not Microsoft."

Carracho, www.carracho.com



Hotline's many moods: Shown here are windows for chat, files, connected users, and news.

have porn," he said. "It's gone down the drain. Warez have always been a part of it, MP3's a totally new factor ... as for porn, they should all be prosecuted for all I care. The legal system complains about the availability of adult sites to kids, then you get those sites advertising on Hotline through the banner ad scheme. Not good." JabberWock says he hopes the situation will improve when Carracho catches on.

Another administrator, Ken Zeise of Dominion Group Benefits of Hamilton, Ontario, pointed out that many purveyors of prurience would simply run

FTP sites if Hotline weren't available. "We support the concept of Hotline because it encourages people to start thinking about non-Web aspects of the Internet," Zeise said. "There's a lot more to the Internet than Web pages."

Still, Hotline is on the rise in the underground community, so it's probably only a matter of time before it reaches the masses. Be patient when exploring Hotline and you're sure to find some useful items — just be aware that you're trolling in some decidedly unsettled, swirling, and sometimes murky waters.

The content issue is a difficult one, but Hotline says there are many legitimate uses for the software, including education, training, tech support, distance learning and project collaboration. Apple includes the software in its \$200 "Internet Curriculum Connections" software bundle for the K-12 market.

Also, Hotline says its software is better than a browser for some tasks. "Just like you wouldn't use a word processor for graphics work — even though it's possible to build graphics functions in \to those programs — there's not a compelling reason to use a browser for everything," Roks says. "Web browsers are designed to display text and pictures, which they do well, but now they're forcing e-commerce, chat, and everything else into them."

At present, though, Hotline is best used in conjunction with the Web, which hosts the Hotline directories and search engine we mentioned before —

and you'll need a browser for these.

One such site called Troutmask (www.troutmask.com) provides a convenient way to get the skinny on current servers, with codes to tell you if they contain Mac shareware, MP3 music files, a chat area, or maybe even software for other operating systems.

We recommend starting out with a Web page such as Troutmask to let you know what's out there. It can be a little daunting to jump right into Hotline, where servers are likely to have such addresses as 208.225.204.133 in addition to such colloquial names like BoffoMac. Web pages dedicated to servers will help you figure out what you're getting into.

The Hotline Client software costs \$35, and the server version costs \$99. The Tracker package, for maintaining a network of servers, is \$199. Educational and volume discounts are available. **MHI**

Online Resources

Hotline software and servers

Hotline www.hotlinesw.com

Websites listing Hotline servers and descriptions

Troutmask www.troutmask.com

Tracker Tracker
www.tracker-tracker.com

Hotline Search Engines

Hotline 411 <http://hamster.stanford.edu/~hotline411> (includes downloadable Sherlock plug-in for browserless searches)

The Snitch www.thesnitch.com

Hotline's search engine
<http://Search.HLServer.com>

HTS: www.at-crc.com/hl

Selected Hotline servers (not URLs; use with Hotline client)

Ambrosia Software
hotline.ambrosiasw.com

AppleShareIP asip.com

MacResource 207.51.88.200

Mac Gamer's Ledge
207.245.14.170:1000

BoffoMac 204.232.45.65

Let's Get Physical

Dance the Night Away

Bookmarks has witnessed the recent swing-dance revival with a bemused and romantic detachment, recalling fondly the magical evenings spent at the Starlight Room kicking up our heels to the sounds of Tommy Dorsey, Duke Ellington, and Artie Shaw. Though tempted to participate in the revolution, excessive amounts of Internet use and salty snacks had left us in a state unfit for the opulence of today's sophisticated dance floors. The situation was complicated by our banishment from the local Arthur Murray dance center, stemming from an unfortunate incident involving peppermint schnapps and a supermarket pricing gun.

Ironically, our salvation came from the Web itself. A few hours spent in the company of Duane's On-Line Dance Lesson page helped us master the basic steps needed for West or East Coast swing, as well as more challenging dances such as the cha-cha, The Lindy Hop, and the hustle. The site uses Java-based animation to show foot placements, and provides a counting mechanism for getting the timing right. Animation is limited to the feet, but there's advice on what to do with the rest of your body.

Load up this site, and you can refer to the steps as trouble arises — even if you're offline, the animations will still play. With a little patience and a lot of practice, this site will help even the most ungainly Web surfers learn to glide across the floor like a latter-day Gene Kelly.

Of course, all true dancers must succumb to the allure, nay, *passion*, of Latin dancing at least once in life, if only to know that there's always someone who dances better than you. You can be reminded of this by visiting the Latin Dancer site, which purports to be a repository of dance info. We were primarily interested in the lessons, of course, what with the upcoming Cinco de Mayo parade.

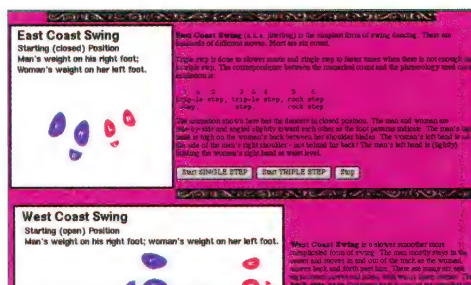
Technically, Latin Dancer does provide lessons, but in the form of QuickTime movies. On the plus side, these show you how to move your whole body, not just your feet. But the files are extremely large — as in 16MB for just one movie, so we don't recommend



this site unless you have a lot of patience and a very fast Internet connection. Also, the onus is on you to analyze the dancers and glean what you can; the site has no narration or text to help you follow, and the dancers aren't lit too well.

BookMarks applauds Latin Dancer's efforts, but hopes it looks into RealVideo or other streaming methods of delivering video in the future, as well as adding more tutorials to explain the steps. When one has Dance Fever, there's no time to waste.

Duane's On-Line Dance Lesson, www.charm.net/~dadamia/DDL.html
Latin Dancer, www.latindancer.com



Turkey in the Straw

Bookmarks knows all too well that not everyone is cut out for the big-city pretensions and airs that go hand in hand with ballroom-style dancing. For this reason we were excited to discover the comprehensive but strangely named Information Super Dance Floor site. We suspect the name is a takeoff on the "Information Superhighway" concept, but at this juncture we'll reserve judgment on the cleverness of this move.

Truth be told, the Information Super Dance Floor is as big as Texas, so to speak, literally holding *haylofts* of information on how to dance various country line dances and hoedowns. The dances form an exhaustive list, with steps choreographed for each. Like Latindancer.com, described at left, this site does not take advantage of the Web's visual capabilities, though the texts are helpful.

The scarce resources available on such esoteric topics effectively thwarted our childhood dreams of becoming a square-dance caller, but now things look brighter thanks to the down-home goodness of the Western Square Dance page. Summer evenings at the rec hall were always special when it was Square Dance Night, though we will admit to some confusion regarding the exact definitions of "do-si-do" or even "Scoot and plenty, now a U-turn back."

This site, a veritable repository of all things square dance, can provide you with information on choreography, clothing, organizations, and, of course, the caller's vocabulary. Bookmarks says "Pass and roll your neighbor!"

Information Super Dance Floor,
www.apci.net/~drdeyne/stepfrms.htm

Western Swing Dance,
www.dosado.com

Running an A-Plus Classroom

Software That Makes the Job Easier

The days of weathered old grade books with grid squares the size of fleas, 10-year-old lesson plans plotted on tattered, yellowed pages, and tests typed on manual typewriters have gone the way of the dinosaur. Nowadays, even an old-school Mac and a 28.8Kbps Internet connection can drastically simplify the lives of teachers and administrators.

Menial tasks take up much of educators' time: grading, creating lesson plans, seating charts, taking attendance, and preparing tests. The more time teachers spend figuring out grades and writing reports on students, the less time they have to innovate in their classrooms. But that's where a number of Mac programs and Internet resources can radically cut the time and hassle spent on classroom minutia.

Such efficiency is not just about mechanizing tasks so that the teacher in classroom A can head home earlier or hand in more attractive reports than the teacher in Classroom B. It's about becoming a more effective educator. Bob Barboza, president of Super School Software, said, "There's this idea of planning in the business community — if you plan well, the community will make a profit. In the education community, if you plan well, you're probably going to teach better."

This is especially important in light of several reports that have emerged in the last few years that have held educators up to scrutiny. "On both a national level

and a local level, there is a trend toward [developing] standards," says Kenyon Scott, Apple's senior marketing manager for products and technologies in education. "In a nutshell, districts and schools want to measure the progress students are making in learning."

Who is held accountable when stan-



dards aren't met? Teachers and administrators. But they are the ones whom Mac software and the Internet can really help — these users can keep abreast of changes in curriculum standards and generate the types of reports that are

becoming more and more necessary as a part of their jobs.

Making the Grade

Mac grading software has been revolutionizing teachers' lives for some years now, giving them an easy way to both determine and distribute student grades.

The market for Mac grading software can be likened to the current state of Internet portals: too many to name with very little to distinguish them. A countless number of grading programs perform similar functions. Some of the more expensive ones, however, also include the ability to help with attendance records and seating charts.

Emily Pabarcus is one teacher who attests that grading programs are worth their price. As an 11th and 12th grade history teacher at Encinal High School in Alameda, California, Pabarcus uses Chariot Software's MicroGrade to record and calculate her students' grades and manage the frequent progress reports she has to generate for her multiple classrooms. "It's made a world of difference. My grading process changed from taking a whole day to taking a couple of hours. It makes life so much easier."

Pabarcus prefers recording grades by hand and then entering them into her Mac at home whenever she has to produce progress reports — usually once every six weeks. With MicroGrade, she creates a number of categories — for instance, tests, reports, or homework — and lists a group of assignments under

each category. She can then designate a total point value to each assignment and weigh the categories differently — for instance, she can make the final test worth 40% and homework and reports worth 30% each. According to Pabarcus, the overall benefit is the time and accuracy she gains from using the program. “It gives me averages, percentages, grades and class rankings. I can do individualized reports and give students periodic copies of the work that they’re missing so they know exactly what assignments they need to turn in. All that stuff is so much easier with a computer.”

The most recent version of MicroGrade is also capable of many advanced functions, such as marking attendance and creating seating charts (Pabarcus has an older version of the software). Attendance is as simple as entering the words “tardy” or “absent” beside a student’s name, while the seating chart involves dragging around boxes labeled with student names.

And for teachers whose schools that are unable to spend more than \$50 per faculty member on an elaborate grading program, there are also shareware and freeware programs that accomplish similar goals — albeit on a slightly more basic level. One such program is Gradekeeper, a shareware program that teachers can demo for free for a month and then pay \$20 if they want to continue using it. For educators like Dean Deters, who teaches 5th grade at Perrydale Elementary in Perrydale, Oregon, that’s all he really needs to manage his classroom. “Gradekeeper allows me to easily keep parents and students informed about students’ progress by printing ready-made reports on student performance.”

The Best Laid Plans

While grading software helps teachers optimize their time, it doesn’t provide the means to improve the actual learning in the classroom. That’s where it becomes important to know the state curriculum standards and design compelling lesson plans around them.

National Computer Systems (NCS) makes standardized tests, the most renowned of which are the Iowa state

The Big Picture

“Schools have to run their facilities better,” said Yolanda Scharton of National Computer Systems. “Schools are the largest enterprise in the community. You can’t have archaic tools running an enterprise like that, and yet they are.”

While software can help teachers run their classrooms more efficiently, it can’t solve the record-keeping problems that exist at a higher level. Many school districts still operate at a primitive level, maintaining records on index cards that must be duplicated year in and year out.

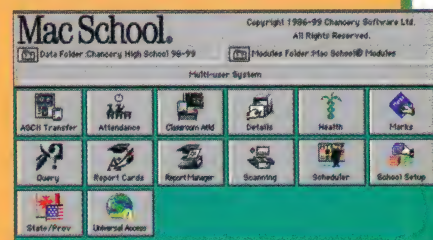
Think about the number of records that districts need to keep on every student in every school in the district: attendance, report cards, discipline problems, and medical histories, to name a few. They must keep data on how many students are schooled in the district, how many require special education or how many have disabilities. They also need to maintain a breakdown of students by race so that at any time, if a state or the federal government needs a report to make, say, a funding decision, the information is available.

The problem for most schools is that these reports must be generated and regenerated by hand every year — something Scharton is very familiar with through personal experience. Every year she receives a form from the Minnesota school district her daughter is enrolled in, requesting an immunization history. “Every year I’ve got to fill out the same damn form,” says Scharton. “If there was a huge health issue, they’d have to go through index cards to see who’s at risk.”

Currently, there are two major district-wide solutions on the market: NCS’s SASIxp and Chancery Software’s Mac School. Both are student information systems that allow individual classrooms and schools to collate data on a daily basis and enter it into modules that feed into the district’s mainframe computer. There are also several Web-based solutions in the works, but none of those has been released yet. For instance, a company called Computer Active is currently working on a Web-based product that runs off of a Mac OS X server running Web Objects. Apple says the company is hoping to pilot the program by midyear.

The difference that a centralized system can make for a school district is staggering. Teachers can record student attendance every day, and if necessary, every period. Depending on whether there is a computer in the classroom, either the teacher or the main office can enter the data. There are teacher’s versions available for both SASIxp and Mac School that allow records (such as grades and attendance) to be kept in each classroom if the hardware is available. In any case, once entered, the district has access to all of the information and can easily run any number of reports needed by the state or federal government.

A number of proprietary programs have been built out of the needs of a specific district or state. For example, when the state of Missouri developed new student attendance guidelines that required schools to keep records for every period, an engineer named Bruce Alspaugh wrote a proprietary program called MacAttendance that allows schools to track student attendance in accordance with the guidelines. The program is now being used across the country for other schools that need to keep up with the rigorous demands of maintaining attendance records for the state.



tests. NCS's software division is devoted to integrating curriculum standards into classrooms using technology. Yolanda Scharton, NCS director of investor relations, said that maintaining standards in the classroom is something not enough teachers are paying attention to. "If a student hasn't done well on an assessment test, is it the test? I don't think so. It's that the classroom isn't teaching the standards," said Scharton.

One NCS product that addresses the standards issue is Abacus, a program that must be purchased as a site license by a school or district. It provides teachers with a comprehensive K-12 curriculum for every subject — leaving no doubt about the standards students must meet at each grade level. Abacus is designed to be used in conjunction with the Educational Structures Website, which provides half a year's worth of lesson plans. Scharton said many teachers are overdue for an overhaul of their classroom curricula. "Some teachers have been in their schools for 20 years," said Scharton, "and they're still using the same lesson plans. But standards could have changed substantially five years ago."

Another program that helps teachers craft a curriculum is Lesson Plan Designer Plus from Super School Software. With Lesson Plan Designer, teachers can easily create multiple lesson plans by using templates. It also has checklists to ensure that teachers are hitting the major standards in each subject. Lesson Plan Designer also offers basic classroom management features like producing seating charts and report cards.

Another type of software that teachers may find helpful is test-designing programs, which range from basic to extremely intricate. For instance, MakeTest is an inexpensive and simple program that runs on any Mac with 2MB of RAM. It allows instructors to store their test questions (and import graphics for them) in a central question file. When creating an exam, teachers can call upon their question files to generate randomized tests. However, a more extensive (and \$400 more expen-

sive) program like Teacher's Tool Kit allows educators to create much more complicated tests and question styles, including word search, word scramble, true/false, matching, fill-in-the-blank, short answer essay, and multiple choice. Despite the price, Tool Kit has been highly praised by both Apple and the National Education Association, and is finding a ready audience — it's being used in more than 25,000 schools across the country.

Making It Work

In the past, educators could make the excuse that they did not have access to technology. But an estimated 65% of classrooms will be wired by 2003, meaning more access to the Net's vast resources. Said Scharton, "If you can relieve the classroom and even the office of some time-consuming, administrative duties, there's more time for student achievement, delivering instruction, and improving education." ■

Products & Resources

Grading Software

Bobbing GradeBook Pro
\$80, Bobbing Software
800-688-6812, www.jump.net/bobbing

Easy Grade Pro
\$49, Orbis Software
253-848-6899, www.orbissoft.com

Grade Busters Mac
\$100, Jay Klein Productions
719-594-0271, www.gradebusters.com

Grade Machine
\$65, Misty City Software
800-795-0049, www.mistycity.com

Gradebook Plus
\$65, SVE
800-829-1900, www.svemedia.com

Gradekeeper (shareware)
\$20, Daniel Ethier
www.gradekeeper.com

GradeQuick
\$65, Jackson Software
800-850-1777, <http://jacksoncorp.com>

InteGrade Pro
\$100, NCS
800-736-4357, www.ncs.com

J&S Gradebook
\$80, Sunburst Communications
914-747-3310, www.nysunburst.com

MicroGrade
\$95, Chariot Software
619-298-0202, www.chariot.com

theGRADER (freeware)
Than'l Interactive Design,
www.thanl.com

Lesson Plan and Curriculum Software

Abacus (to be purchased at a schoolwide/district level)
price varies, depending on district, NCS

Lesson Plan Designer Plus
\$80, Super School Software
800-248-7099,
www.superschoolsoftware.com

Test Designing Software

MakeTest
\$59, Mountain Lake Software
800-421-2009, www.mtlake.com

Teacher's Tool Kit
\$450, Hi-Tech of Santa Cruz
800-336-2558, www.teachertools.com

Test Designer Supreme
\$150, Super School Software

Other Programs

Teacher Productivity Bundle includes AppleWorks, MakeTest, Easy Grade Pro, and the Educator's Internet CD
\$200, Apple Computer
800-780-5009,
www.apple.com/education

Other Resources

Computer Active
613-225-4824,
www.computeractive.com

Mac School, Chancery Software
800-999-9931, www.chancery.com

MacAttendance, Missouri School Boards Association
573-445-9920,
www.missouri.edu/~alspaugh

SASixp, NCS
800-736-4357, www.ncs.com

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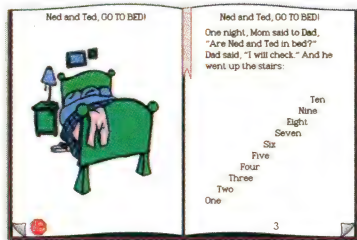
THIS IS NOT A REGISTRATION FORM.

Inspired Caterpillars

The current trend of "cognitive experiential learning," commonly known as learning by doing, has long been a favorite of software developers. Inspired Logic, whose primary expertise had been in designing solutions for Fortune 500 companies, has turned its sites to educational software.

Its Mac-only *C.D. Caterpillar* program is designed to help beginning readers strengthen their reading skills quickly in a non-threatening environment. It allows any level of reader to move through the software: Problem words can be clicked for help, and the software keeps track of those words, reinforcing them later in specially targeted games.

Inspired Logic, 818-951-0415, www.inspiredlogic.com



Techno-A-Go-Go

A staggering 84% of teachers are uncomfortable with the little gray boxes — computers — in their classrooms. To help alleviate that stress, and also to help educators understand the role of technology in education, the Center for Technology and School Change at Teachers College, Columbia University, and the Children's Software Press have teamed up to produce a series of booklets dealing with the latest technology and education issues. Blending a look at curriculum development and examples for ongoing projects, the booklets provide tools for using standard hardware and software to their maximum potential.

\$5 each, Children's Software Press, 713-467-8686

Highwired Online

"Today's journalism teachers are completely overworked. Teachers spend most of their time managing floppy disks, solving format problems, and chasing down the latest versions of stories," says Mark Johnson, vice president of Highwired.Net, which brings a free online journalism program to schools, allowing students to publish on the Internet without knowing HTML. Promising to provide a way to free up teachers' time for teaching writing and editing skills, the software was developed by a group of graduate students to allow educators to comfortably use technology with high-school students. Once online, the articles can be viewed around the world, and students can post their stories to the National Pool section, where students from other schools can pick up the articles to publish in their own paper (or virtual paper, as the case may be).
Highwired.Net, www.highwired.net



Mathletes

First there was Microsoft, then MacSoft, and now, MathSoft. The company has shipped a Mac version of its *StudyWorks 2.0* software, covering algebra I, II, geometry, trigonometry, pre-calculus, and statistics. MathSoft also has a science curriculum package covering core concepts in earth science, biology, chemistry, physics, and statistics. Though the product is primarily offered to schools, it's also available at a single-user price.

*\$100, MathSoft
www.mathsoft.com*

Dead Language Society

Transparent Language, makers of language learning software, is offering a unique program to preservationists of dying languages. In an attempt to save languages and cultures from languishing in obscurity, the company will partner with non-profit organizations, and pour languages and other information into a pre-established language education software engine.

The company is still seeking suitable candidates for its first project, perhaps Cornish, which has fewer than 200 speakers left, or Ebonics. If you're interested in participating, contact Mike Quinlan, president of Transparent Language for more information.

The company's *Language Now!* version 7.0 series adds Arabic, Polish, and Irish Gaelic to the family of language software, bringing the total number of languages offered to 13.
\$50, Transparent Language, 603-465-2230, www.transparent.com

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www.wizardworks.com/macsoft/

Art 20: The Thames and Hudson Multimedia Dictionary of Modern Art



\$125, Thames and Hudson

212-354-3763

www.wwnorton.com/thames

Like modern art itself, *Art 20: The Thames and Hudson Multimedia Dictionary of Modern Art* is often a little complicated. The concept is wonderful: combine 3,500 images and more than 2,500 profiles of artists, art movements, and museums into a navigable dictionary. The execution, however, is a little obtuse.

Plan on spending a minimum of 20 minutes with the multimedia User Guide. For whatever reason, probably aesthetics, the dictionary's producers

chose to use navigation tools that are hidden until you run your mouse over them, and though the resulting effect is attractive, ease of use should have taken precedence.

This is not to say that there's nothing to be gained here. The dictionary allows you to search alphabetically, or you can move through a chronological, century-long slide show. It's wonderful to see art evolve through the years. The information provided on each artist is sometimes sparse, but the biographical information imparts a good sense of major

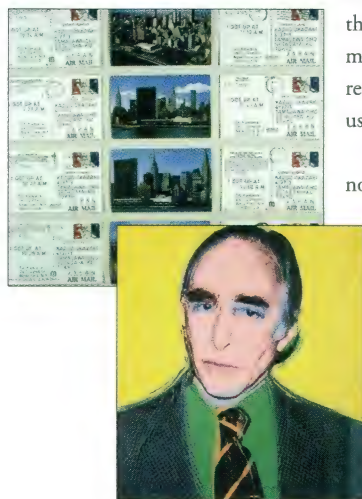
artists' work and relationships with their contemporaries and history.

A hypertext feature highlights phrases that come up in other dictionary entries, allowing you to follow the players in a specific movement easily. Included on the CD are 60 clips of artists' voices, but a more cohesive voice-over would have been extremely helpful — if not throughout the slide show, then perhaps at the beginning of each year, highlighting significant developments.

Now, anything that casually tosses around phrases such as *orgiastic gesturalism* is fine with me, but often these and other more technical art terms, such as *monolithic calligrammes*, merited further explanation. *Art 20* is a dictionary with few definitions; in fact, it's more of a biographical or chronological reference work.

This is not a good choice for someone looking for a casual introduction to 20th century art history. The interface, vocabulary, and choice of paintings may put off beginners at times; often artists' signature works are not shown, favoring lesser-known pieces, but this might also be a draw for those looking for more than *Art's Greatest Hits*. For someone steeped in art culture and language, or for someone willing to take the time to learn the ropes, this can be a valuable piece of software indeed.

— Anne Marie Feld



Complete Guide to the Undersea World



\$50, Sumeria

415-904-0800

www.sumeria.com

Sumeria's *Complete Guide to the Undersea World* could more aptly be named a *Complete Guide for Divers*. Focused on the needs of scuba divers, the CD-ROM is an excellent repository for all things diving: accommodations, diving physics, equipment reference, reports on the state of the oceans, the world's best diving destinations, and my personal favorite, dangerous marine life.

The CD uses QuickTime movies to give a general overview of most topics. From there you select what interests you (the interface is very easy to navigate — you'll never need to use the help index) and explore. Most of the graphics are beautiful: richly colored and nicely photographed. Movies and images looked better on a faster machine with a graphics acceleration card, but the program played satisfactorily, if a little pixelly, on a PowerPC 7500. There's also a convenient tabbed information bar that gives you access to any branch of the program.

This is a useful reference for divers and will probably fascinate kids while teaching them about the underwater world. It's a must-have for a budding or full-blown Jacques Cousteau wanna-be.

— Anne Marie Feld



My Very First Little People Playhouse



\$20, Fisher Price/Knowledge Adventure

800-542-4240

www.knowledgeadventure.com

Ages 18 months to 3 years

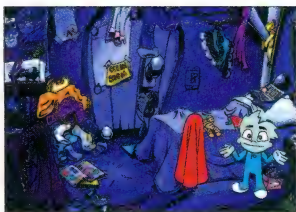
While it's hard to imagine a diaper-clad tot sidling up to the keyboard and hunkering down for some solid game time, *My Very First Little People Playhouse* is aimed at exactly that demographic. Falling into the category of lapware (software for kids and parents to use together), this CD has six activities intended to teach kids to sort,

count, match colors and objects, and identify objects and people in various professions.

Each activity begins with an animation of a chirpy little puppy named Lucky who belts out a tune and then takes the user through the paces of the game. The colors are rich and saturated, and the music is decidedly catchy. The games seem almost certain to try a parent's patience, however: There is little variety, but the activities are age-appropriate, if limited, and kids should enjoy the outpouring of positive reinforcement and cheers from the good-natured Lucky.

My Very First Little People Playhouse is a friendly and facile introduction for kids into the world of computers. It's as appealing as an episode of *Sesame Street*, with about half of the intellectual calories.

— Anne Marie Feld



Pajama Sam's Lost and Found



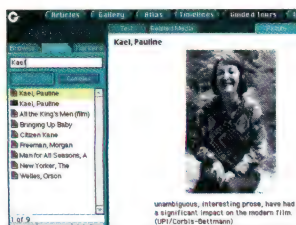
\$15, Humongous
800-499-8386
www.humongous.com
Ages 3 to 8
PowerPC required

It's not educational in the least, but *Pajama Sam's Lost and Found* is a lot of fun. It's an animated arcade game — PJ Sam moves against a mobile backdrop and responds to mouse movement and key commands. You steer him down a river in his canoe to retrieve his stuff — globes, spare socks, teddy bears — picking up bonus cards and points along the way. As the levels become more

difficult, the need for good hand-eye coordination kicks in, and kids must steer Sam carefully to avoid hazards such as alligators, tree branches, and stray toys. It's not easy. I had a moment at level 15 (there are 100 levels in all) when I was reminded of an especially trying sequence in *Tomb Raider II*.

There's nothing to install: The game is played off the disc, and it uses a password system to let you start at the level you left off at. The help in the manual is less than helpful — there's nothing on the disc — and it's not entirely intuitive. After playing five levels or so, kids should have a pretty good handle on it, but a little animated how-to would have been helpful in place of the opening sequence, which imparts no useful information. But as far as non-violent, engaging arcade games go, this is one of the best I've seen.

— Anne Marie Feld



1999 Grolier Multimedia Encyclopedia — iMac



\$60, Grolier Interactive
203-797-3530
http://gi.grolier.com
Ages 8 and up
G3 required

This is what an encyclopedia should be. Full-motion MPEG-video playback, high-quality sound, thousands of pictures, 58,000 articles (36,000 are on the disc, the remainder are online, where two additional encyclopedias are available) 1,200 maps, and content that is clear, concise, and accessible for

adults and kids. The only catch is that you need a G3 to use it.

The interface is designed to complement the Bondi blue color scheme of the early iMacs, and is easy to navigate: Searching and browsing are tabbed, and related articles are automatically offered up. The Tree of Knowledge has icons that let you know if a file has photos, video clips, or text only.

The range of information is impressive: From Roman Emperor and madman Nero, to 21st century film critic Pauline Kael to the machinations of the human body, there is little that this ambitious title doesn't cover.

My only problem is minor: Even though you install it on your hard disk, you must shuttle between the two CDs to access certain data. A single-disc DVD version would be nice, but for now, this is a wonderful resource.

— Anne Marie Feld

D.W. the Picky Eater



\$30, Broderbund
800-521-6263
www.broderbund.com
Ages 3 to 7

My family loves the Living Book series — not only for educational value but also for the wealth of their content. There's plenty to do to hold a child's attention without having to hack through every organism (living or dead) that appears on your screen.

If you're conversant with the Arthur series, then the characters and the interface will be pleasantly familiar, though if you're not, it's still quite accessible.

D. W. the Picky Eater is about Arthur's little sister's

finicky eating

habits (just like a certain five-year-old in our household). While

D.W. learns that eating

new foods can

be a lot of fun,

she also gives a

lesson in nutrition. Spaghetti is a grain, right?

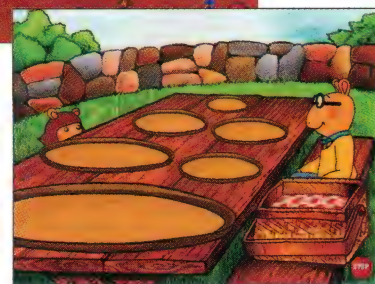
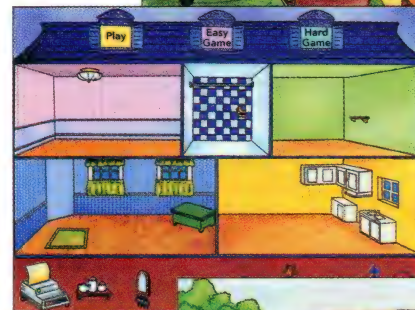
Through the use of games your child learns word recognition, hand-eye coordination, logic, vocabulary, story telling, and, of course, reading.

Like all of the Living Books, the story is read aloud while

your child follows along. In each section of the story all sorts of surprises can be found by clicking items in the picture. If you don't know what to do, just click on D.W. and she'll guide you to an activity.

As the story is read, the spoken phrases are highlighted onscreen, which makes it easy for a child to follow along. Click on any word and it will be read aloud. As children grow more competent in reading, they can choose between reading the story themselves or have the story read aloud to them.

As children learn words and explore vocabulary, they also get to do a little exploring on their own. One of my children's favorite activities is to check each page for the many hidden surprises. Just move the pointer over an item on the page. If there is a surprise to be found, the pointer will turn into a hand. Click on the item and the silliness begins! This helps keep kids focused on learning as a fun activity rather than a chore, and best of all, it teaches them to explore.



— Art Jones

A Primer on Divining

Astrology, Tarot, and the I-Ching for the Mac

Ask five people at a cocktail party how they feel about astrology, the study of Tarot cards, or the Oracle of Changes: I-Ching, and you're likely to get responses ranging from "fun" and "fascinating" to "hokey" and "suspicious." However you look at it, these divining tools have stood the test of time, and of late have come to reside online and in software for the Macintosh. Here's a brief look at what the future holds for such things.

Astrology Lite

Swoon is a one-stop online shop for all things astrological. What's especially nice is that in addition to the standard Sun Signs (Capricorn, Scorpio, etc.), it also includes love matching (so long, Linda Goodman's *Love Signs*). One section, Elemental Love, takes the physical aspect of your sign (earth, water, fire, or air), matches it with the quality of your rising sign (if you're uncertain, there's info on how to determine your rising sign on the site), and then gives you information on ideal partners, character portraits, and celebrities who share your sign.

If love isn't of interest, then cut to the chase with Swoon's Sex Scopes, which give you a brief self-portrait, best and worst matches in lovers, and a forecast of the year ahead. There are standard astro-profiles for the next year, love matches, and monthly readings as well, adapted from *Mademoiselle* and *Details* magazines (Conde Naste is the parent company of those magazines and Swoon).

Since Swoon hung out its shingle, it has added other services to keep it fresh:

Chinese Horoscopes, Numerology, and the Name Game all promise to teach you more about yourself. Many feel that the best feature of Swoon is the free horoscopes (by Celeste): Enter your sign and e-mail address or that of a friend, and it will e-mail free forecasts six days a week.

Rob Brezny's Real Astrology page is among the most visited astrology sites on the Web. It's a simple, low-frills site, but it gets close to a million hits each month, thanks to Brezny's breezy, often funny forecasts. It's not, however, the best designed: From the opening page, scroll down to get weekly readings. According to Winifred Van DerVart, a Scottsdale, Arizona-based astrologer, daily readings are only part of

the story. "If a person is born between 5 and 7 A.M., the [standard] predictions will be accurate," she said. To get a more accurate reading, said Van DerVart, you should also check your ascendant sign, which is more reliable in terms of your-current situation.

Hardcore Astrology

Daily horoscopes are small astrological potatoes compared with what's out there if you want to get in-depth. For starters, free online natal charts are available at Kenaz

Services. "Charts tell you what was promised to you in this lifetime," said Van DerVart, who hand-draws her charts. At Kenaz, simply punch in your birth date, birth time, the time zone (all astrological movement is counted back from Greenwich Mean Time), and the latitude and longitude of your birthplace. For those of you who don't have the latitude and longitude of the place you were born at your fingertips, the page links to Astrodienst, another site that will calculate such

things and will also draw

you a free chart — although if you don't have prior experience with the charts, they're almost impossible to understand. Back at Kenaz, you can choose from a variety of chart calculation



methods and options. The traditional chart, the Placidus, is the default, but according to Van DerVart, the Koch (pronounced Coke) method is more accurate. Select Draw Chart, and a moment later you have pages of what might have taken an astrologer doing a hand chart hours to draw (though many astrologers today use computers to crunch astrological data).

"Usually when people come to an astrologer, they have a specific *problem*," said Van DerVart. It's difficult to get a focused analysis using the online natal chart, although you can do a reading of a single event — a wedding for example — for its astrological auspiciousness.

MacHome showed Marvin Babin, a San Francisco, California-based astrologer, the 47 pages generated by Kenaz for a single chart. "These are pretty hip readings," he said. "Quite complex, very detailed. There are subtleties here that you wouldn't think they could get." But like many things on the Internet, there's a lot of data, and it's hard to find exactly the kernel you need without a guide. "[The Internet] is accurate," said Babin, "but it can't do what the mind can do to put it all together. Your brain gets fatigued just reading it." He's right. After reading a few paragraphs of the chart —

Sun in Sagittarius and 4th House: This person's spirit, ego, image of self, and sense of aliveness is jovial, open-minded, loves freedom, and seeks meaning and new experiences. Most often this manifests in the area of life and with imagination, fantasies, inner feelings, and domestic life.

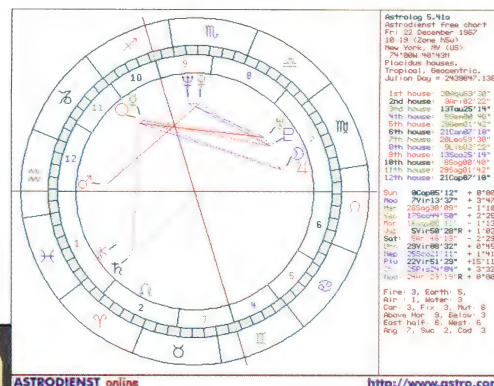
— the mind starts to close down, especially as the chart becomes repetitive. But it can be a wonderful, money-saving first step — astrologers charge anywhere from \$25 to upward of \$150 to do a chart reading with or without an interpretation.

According to Van DerVart, the full chart is rarely used in astrology, unless someone is looking for a relationship reading, a comparison of one person's chart to that of a potential love match.

Tarot/I-Ching

People in the field differ in opinion about the validity of computerized Tarot and I-Ching, whether it is done via software or in one of the chat rooms that proliferate on the Web.

Traditionally, most methods of divination take their power from



Above astrological chart generated by Astrodienst. Left, Tarot Magic.

the results using different divining methods. For those who haven't used the I-Ching before, it's a very accessible introduction to it. Even if you don't use it to make decisions about the future, it's a meditative approach to problem solving, and the Chinese philosophy and folklore that come through are definitely food for thought.

Whether or not you believe in astrology, Tarot, or the I-Ching, these are interesting ways to approach problems. They also give structure to the exploration of the self, and, most of the time, are far, far more relaxing than blowing the heads off monsters. **MII**

the idea that the person touching the divining tools (cards, coins) is personally selecting the results in relation to the question that he or she holds in mind. A reader simply analyzes from there. As for the computerized version, "I really think it's more for entertainment that way," said Van DerVart. "I don't think you get anything out of that." Babin disagrees. "One has to view the machine as an extension," he said. "But I don't see how it's any less valid."

There are a few types of divination software for the Mac: *Tarot Magic* from Visionary Networks (reviewed April, 1999) offers a simple, straightforward introduction to Tarot, and a choice of several spreads.

The I-Ching inspired Taoism, many types of martial arts, Chinese medicine, and the practice of Feng Shui, the art of furniture arrangement. Visionary has an Oracle of Changes:I-Ching program that promises to "make life a game you win more often." But in spite of this gonzo bit of salesmanship, the I-Ching is interpreted faithfully, with the exception of some linguistic differences to ensure political correctness.

The Multimedia I-Ching from Princeton University Press is a beautifully illustrated CD-ROM (reviewed July 1998) that allows you to ask questions, throw the coins, and interpret

Resources

Astrodienst

Zurich atlas and time zone database
www.astro.ch

Kenaz

Free online natal charts
www.kenaz.com

Princeton University Press

Makers of *The Multimedia I-Ching*
800-815-4524
iching.princeton.edu

Swoon

E-mail horoscopes, horoscopes by Celeste
www.swoon.com

Real Astrology

Rob Brezny's forecasts
realastrology.com

Visionary Networks

Makers of *Tarot Magic* and *Oracle of Changes*
800-518-1968
www.visionarynet.com

Rainbow Six Comes to the Mac

An editor at a PC gaming magazine (*ewwww*) told me that no one in her office did any work once *Rainbow Six* came onto the scene. This behavior persisted for months.

Mac gamers have had to wait quite a while for this 3D strategy game, the brainchild of author Tom Clancy, but its release is tentatively scheduled for this August.

The plot revolves around Rainbow, an elite antiterrorist task force on a mission to save the planet. Rumor has it that Clancy may appear at Macworld Expo in New York this July.

Macsoft, 619-509-7600, www.wizworks.com/macsoft



Virtual Game Station on Pre-G3s?

Connectix's much ballyhooed Virtual Game Station is in the news again. According to Sonnet Technologies, the Virtual Game Station, which is billed to work with factory-original G3s only, works with the company's Crescendo G3 processor upgrade cards rated at 300MHz or better. Robert Farnsworth, president of Sonnet, said, "We checked Virtual Game Station in our compatibility labs and were pleased to discover that our faster G3s play very well."

According to Sonnet's results, users experienced dropped frames and frequent sound glitches using lower-end cards such as its Crescendo 266MHz G3 card with a 1MB backside cache and its 233MHz/512K G3 card. The higher-end cards that they found higher-end cards worthy of VGS start at around \$600.

When reached for comment, Connectix's president and CEO Roy McDonald said, "We do not currently recommend the use of Virtual Game Station with any G3 upgrade card, including the Sonnet card." As for future consideration, McDonald said that there is "no such testing on our schedule at this time, and at best it's months away."

Connectix, 650-571-5100, www.connectix.com

Sonnet, 800-786-6260, www.sonnettech.com

ATI Offers Trade Up

For those of you who have been salivating over the ATI Rage Pro 128 graphics acceleration cards that come with the new G3s but find yourselves shackled to an older system for socio-economic, psychological, or nostalgic reasons, help may be on the way.

ATI is offering a new trade-up program: If you have a 3D graphics card from any manufacturer, ATI will accept it as a trade-in for a new card using the Rage 128 chipset. Original cards retail for about \$200. With the trade-in program, you can get a new card for \$160. Catches: you have to send in your old card within four weeks, or ATI comes after you, and you're responsible for shipping and handling. ATI, 905-882-2600, www.atitech.com

I Come to Bury Nero, I Come to Praise Him

In 60 A.D. Nero was Emperor of Rome. Reputed to have burned down two-thirds of the city, his confirmed behavior wasn't much better: he killed his pregnant wife by kicking her to death, and he killed another woman for refusing to marry him. It's hard to think of a more evil person to fight against—or to fight for.



In *Nethergate*, the Romans are attacking ancient Britain, and you can play either side of the fence. Quests, puzzles, and character interactions are contingent on the side you play, and, according to Jeff Vogel, Spiderweb's president, this feature lets you understand the motivations and moves of the opposition in a whole new light.

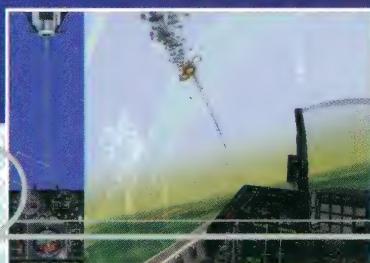
Spiderweb, 206-789-4438, www.spidweb.com

The Plane! The Plane!

Joining the recent wave of flight sims for the Mac is Kesmai's *Air Warrior III*. The multi-player dogfighting game lets you choose from World War I, World War II, or Korean War action and aircraft. A pioneer in online combat action, *Air Warrior* debuted ten years ago, and has, at long last, made the journey to the Mac. Kesmai, www.gamestorm.com



Technically, it's still a computer game.



FALCON[®] 4.0

It's a **SIMULATOR** of unparalleled realism, graphics, and intensity. FALCON 4.0 uses the most realistic flight model, avionics, and weapons systems available in any flight sim — and you control every button, every switch, every aspect of flying the real thing.

There's **COMBAT**. Lots of it. FALCON 4.0 is the only flight simulation with a completely real-time campaign which carries on while you plot your next move. You can duke it out in the skies

with **Dogfight** action, giving you even more combat — man-to-man or man-to-AI. Multiplay allows you take on other pilots over LAN or the Internet, or cooperate with them, flying missions together or separately.

Even if you're new to flight sims, you can jump into battle with **INSTANT ACTION** gameplay. Using a simplified flight model, you'll have unlimited ammo, fuel and enemies. No briefings, no missions to plan. Just action.

Is it **EXPERIENCE** you need? FALCON 4.0's Tactical Engagement is the most extensive mission builder and training system in this corner of the solar system. Fly training missions to hone your skills in all aspects of flight, create your own missions, or trade missions with pilots all over the world.

Can you take on the **ULTIMATE** in sim experiences? FALCON 4.0 is waiting. Computer aviation has never seen anything like this.

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www.microprose.com



Westlake
INTERACTIVE
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Available soon at your favorite
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www.gtstore.com

MacSoft[®]

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www.wizardworks.com/macsoft/

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Stick to Your Guns

The Gamestick 3D vs. the Ares Ultimate Warrior

It's humiliating to be blown away, time and time again, wantonly hacking away at the Fire key with one hand as you attempt to limp away by pumping the arrow key with the other. If you want to get blown away in style, pick up a joystick before you assail your next opponent. A joystick integrates motion, firing, and panning around the battlefield into one single device that you can operate with one hand. Many games support them, and they're especially useful in flight simulation games, because they so easily emulate the feel of flight controls. I tried out two USB models, Ariston's Ares Ultimate Warrior and CH's Gamestick 3D.

Get a Grip

The CH Gamestick 3D has a unique design that allows you to hold it in your lap as well as on the desk. But it is a little unstable unless you grip it with both hands. The grip has a main trigger on the front and a small round button directly below it. On the back, where your thumb meets the grip, it has a four-position POV (Point of View) hat which allows you to look around while moving forward, and two small buttons below it on the left. On the base of the joystick, there are two slider controls for adjusting the "trim," or amount of play the joystick has relative to the onscreen movement. It also has a slider control on the back of the base, which is perfect for adjusting the throttle in a flight simulation game. The Gamestick control panel allows you to map the buttons to keyboard commands, so you can use it with any game whatsoever, and this is a nice touch — you could use it with ancient arcade games such as *Tetris*, or shareware classics such as *Moz Pong*.

Ariston's Ares Ultimate Warrior is much sturdier, and has a base that's molded only for desk use, though if you really must, you could hold it in your lap. Along with a main trigger on the front, it's got an alternative fire button, but unlike the one on the Gamestick, it's located on the side, where you can access it with the thumb. The other thumb controls along the back of the grip are two buttons, one that's perfect for the tip of the thumb, and one that's a bit smaller which you can hit with the joint. It's got two slider controls on the base, as well as four buttons, which, with your free hand, you can use to switch or drop weapons or other objects you may be carrying around. The Warrior's trim controls are located underneath the base, which is actually a very clever place to put them; once you set the trim, you're not going to be making adjustments to it throughout a game, so it makes sense to take them out of the picture.

Ergonomics on the Battlefield

The Gamestick can twist left to right, as well as rotate in a circle, and it has a more linear feel than the Warrior. However, where the grip of the Gamestick meets the base, it swivels side-to-side and forward and back well enough, but the Warrior provides a smoother, circular swivel. To top it off, the POV hat on the Warrior is an 8-position hat with a 360-degree feel, but the Gamestick has just a four-position toggle.

Overall, I found the Gamestick to be a bit awkward to use, but others in the office preferred it to the Warrior, especially those who are left-handed: the Gamestick has a symmetrical, ambidextrous design. I found that the Gamestick fit my palm nicely, but in order to use both firing buttons in the front, to simultaneously bombard the enemy with two different guns, I felt that I needed to curl up middle finger and pull my palm away from the grip. Similarly, I found that I needed to curl my thumb in order to rotate the POV hat, whereas my thumb could remain in a straight, natural position with the Warrior.

The Final Decision Try as I may, I could not declare a victor. If you're southpaw, go with the Gamestick. — you won't even be able to use the Warrior. Otherwise, they both have their strengths, and in terms of comfort and the accessibility of controls, which are the main criteria for selecting a joystick, the wisest judge will be your own hand.

— David Weiss



Gamestick 3D

★★★★★
\$50, CH Products
760-598-2518
www.chproducts.com
USB Required

👍 Designed for the lap as well as the desk, twists as well as rotates, ambidextrous, can use it with any game

👎 Slightly rigid, linear feel, unstable base, limited POV hat

Ares Ultimate Warrior

★★★★★
\$50, Ariston Technologies
714-846-7676
www.ariston.com
USB Required

👍 Sturdy base, moves in complete circles, generous assortment of buttons, two sliders, comfortable access to controls

👎 Not ambidextrous, doesn't support twisting, no support for older games

Nightfall



\$30, Altor Systems, Inc.

650-321-1416

www.altorsys.com

PowerPC required

Tired of blasting your way through hordes of alien creatures, mutants, monsters, enemy soldiers, terrorists, dinosaurs, and even liquid-eyed Bambis? Here, at last, is a quiet, peaceful game of exploration, without a single drop of blood to shed.

Altor Systems' non-violent world of *Nightfall* is one of those strange adventure games that leaves some gamers clamoring for more and others twitching with boredom. An archaeological voyage through the dark underground corridors of an ancient Egyptian pyramid, this game is like a 3D shooter without the guns. Simple to play, easy to navigate, pleasing to the eye — and utterly devoid of action.

The premise is simple: You're in a dark Egyptian tomb when a sudden earthquake collapses the entryway and traps you underground. It's up to you to find a new way out, of course. There are puzzles to solve, secret doors to open, and numerous picturesque levels stretching before you. Fortunately, an earlier archaeologist stumbled onto the same tomb a century earlier, chased by enemies, and has left various pages from his journal scattered about to give you clues.

Two years of cultural and historical research went into the game, and it shows. You'll encounter all manner of hieroglyphs, sacred icons, carved images, symbols, and other surprises to keep you moving. It's really a gorgeous exercise, except that scene after scene of stone corridors and dusty artifacts and painted tomb rooms may get a little old.

You get truly seamless 3D graphics, with the freedom to explore anywhere. And the interface is easy and straightforward. You can start playing in 60 seconds, without bothering to read a long, detailed manual. Use a mouse or the direction keys, and a virtual hand cursor will tell you where to go by pointing forward, up, down, or to either side (it also becomes a grasping hand to show you what to touch or pick up). Most of the puzzles are fairly simple, though they grow progressively harder as you advance in the game. Even so, most puzzles can be solved in several different ways, with none of that do-it-again-and-again until you finally figure out what the puzzlemasters had in mind. So if you hit a snag, try everything. Put the proper jars on the proper pedestals. Stack objects. Climb. Throw switches. Rearrange shuffled wall plaques. Eventually you'll find ways to open the various secret doors that lead to new vistas and all fourteen complex levels.

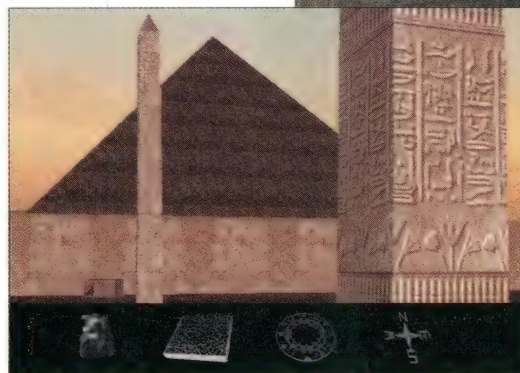
The twisting, turning levels can be confusing, especially since you view them from a walking first-person perspective. One wall can look like another, and before you know it, you're lost. Luckily, a touch of the cursor brings up an overhead map of any current level to show you all the corridors you have thus far unearthed. You can zoom in or out on the map to pinpoint your location.

If you're looking for action, you've come to the wrong game. There's no blood, no shooting, no slashing, no violence at all. *Nightfall* is more in the mold of *Myst* or *Riven*, though without the intricacies of plot. This may sit well with parents who worry about violence in games, but not with twitch-and-shoot gamers accustomed to loads of gore to spice up their prowling.

On the other hand, if you like Egyptology and brain-twisting exploration, *Nightfall* should suit you just fine. The music is ambient, with a Middle Eastern flavor. You'll encounter reams of Egyptian myth and mystery, and learn a lot about ancient cultures. And you'll probably get very lonely. Except for an occasional tomb rat or sacred dog, no other creature breathes or moves. There's a journal note on level six in which the ancient archaeologist says, "I am overwhelmed with despair . . . all this exertion to explore and progress requires much of me . . ."

If you aren't into click-and-explore games, you may discover that same despair. And quickly.

— John Lee



Klingon Honor Guard



\$50, MacSoft

800-229-2714

www.wizworks.com/macsoft

PowerPC required

Ah, those ridged foreheads. If you're a fan of "Star Trek: The Next Generation," you've seen Worf in the holodeck working off his Klingon aggressiveness by slaughtering a stream of computer-generated enemies. Now you can ease your own aggressive tendencies in a similar fashion.

MacSoft's new port of *Klingon Honor Guard* is a 3D shooter based on the powerful *Unreal* engine. It allows you to muscle up and join the brutal ranks of the Klingons. Armed with a ceremonial D'k Tahg combat knife, you'll find yourself surrounded by a host of familiar faces and places.

You're an Honor Guard recruit, undergoing a training session in the holodeck (useful for learning game controls) when an assassin's bomb kills most of the Klingon High Council, yanking you back to the cold, dark Klingon world. As a member of the Klingon Honor Guard, the only loyal warriors who can be trusted to hunt down and root out the traitors, you are pressed into immediate service. Gore awaits.

And there's gore aplenty — if you like designer colors. Klingon blood, you may recall, is a kind of pale fuchsia. Disconcerting, to say the least. But you'd better get used to odd hue, because you'll spill gallons of it. It splashes across battle grounds like fluorescent Rorschach ink blots.

As any clever Klingon will tell you, "IeghlaHchu'be'chugh min lo'laHbe' taj jej." An ancient Klingon proverb, it means, "A sharp knife is nothing without a sharp eye." And you'll need a sharp eye. To get through locked doors and reach advanced levels, you have to find all kinds of keys, from passcards to retinal scans. But you'll get to use the knife, too. You'll fight traitorous Klingons and blue, antennaeed Andorians (up to five at once), as well as Nausicaan grenadiers and transparent Lethians who blend into the background and hurl spheres of blue energy. You'll also face monsters like the rock-hurling Ro'PeD creatures, guard beast Targs and deadly Tar Chop scorpions, not to mention bireQT fish and the huge Chuch biQDepes who go for your throat when you swim.

In addition to the D'k Tahg knife, you'll use disrupter pistols and rifles, a grenade launcher, a ding pach (which shoots a spinning razor disc) and Sith har blasters. Most fun, however, are the melee weapons — the D'k Tahg and the crescent-shaped Bar'Leth blade. Both cut a wide swath in hand-to-hand combat.

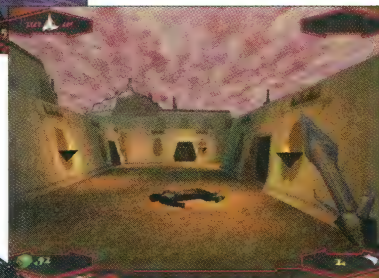
Klingon Honor Guard provides a rich gaming universe with 19 recognizable levels. Once you get off of the Klingon homeworld, you'll do battle on space stations, the frozen penal colony of Rura Penthe, the bars and pleasure palaces of Qualor 2, an alien tradeship, a Klingon Bird of Prey, and the bleak moon of Praxis. There's even a zero-gravity level where the pink blood floats in globules (make sure your magnetic boots are turned on or you may do some globule shedding yourself). The plot is propelled between levels with video briefings and short cut-scenes.

How good is it? PC reviewers complained about bugs and the early levels when the Microprose version first came out. But the gurus at Westlake Interactive have done a superior job of porting the game for MacSoft, and most of the bugs have been eliminated. As for those supposedly dull early levels, they're absolutely gorgeous using a Voodoo card like Village Tronic's MacMagic.

But there's a problem. Another Klingon proverb says, "Suvlu'taHvIS yapbe HoS neH." ("Brute strength is not the most important asset in a fight.")

Oh, yeah? Try telling that to your computer. Like *Unreal*, *Klingon Honor Guard* takes a hefty machine and a heap of power to run. System requirements call for 32MB of RAM and suggest 64MB is better, but this is a complicated game with humongous graphic detail, so don't be surprised if you need 100MB to keep it running smoothly. Fortunately, the game works well with virtual memory (only a few pauses here and there), so crank it up.

And get ready to spill oceans of that icky pink blood.



— John Lee

A Fist Full of Solitaire

Two New Titles Duke It Out

I once interviewed a psychologist who admitted to being addicted to computer solitaire. Obsessed, even. For many it's hard to imagine, but solitaire is pretty darn compelling for some. I'd venture to say that computer solitaire beats manual solitaire in terms of ease of use, speed of play, and the nice little perks that come along with the package: the flashing or highlighting of playable cards, messages that tell you to "quit now, nothing else can be won here." And, it can expose you to new games, freeing you from that Klondike rut you've been in.

Mac software giant Macsoft, and Masque Publishing both released Solitaire games at this past January's Macworld Expo: *America's Greatest Solitaire Games* and *Solitaire Antics Deluxe*, respectively. We looked at both of them here at the MacHome labs: here's the short list of what they have in common. Numbers: *America's Greatest Solitaire Games* has 36 games, *Solitaire Antics Deluxe*, 50. Most games overlap, and both have several variations of Klondike, which can be customized. Both have an auto-play feature, great if you're just learning a game, but if you're playing to win, it becomes about as exciting as spending a quiet evening watching pot after pot of water boil. Both are easy to use, both spit you directly into Klondike, solitaire's greatest hit.

Most games follow the familiar sequence (build up or down on suits or numerical sequences) but some are

rather difficult. Both of the collections we looked at do a good job of teaching you the ins and outs of each game.

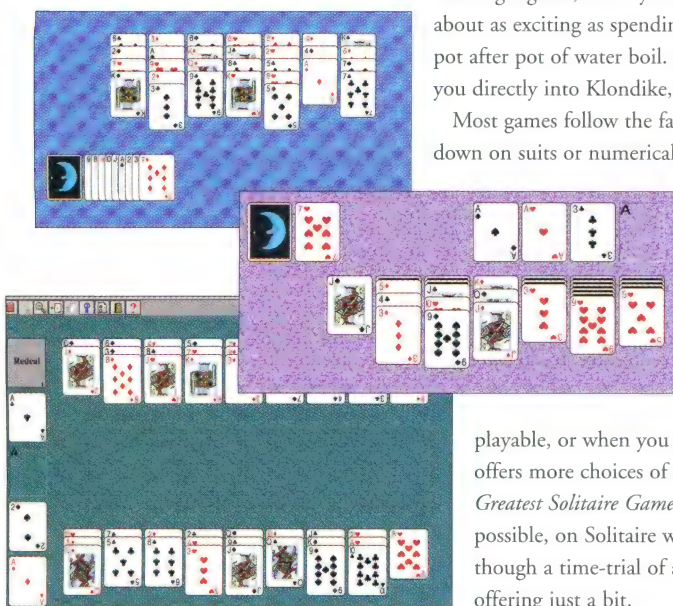
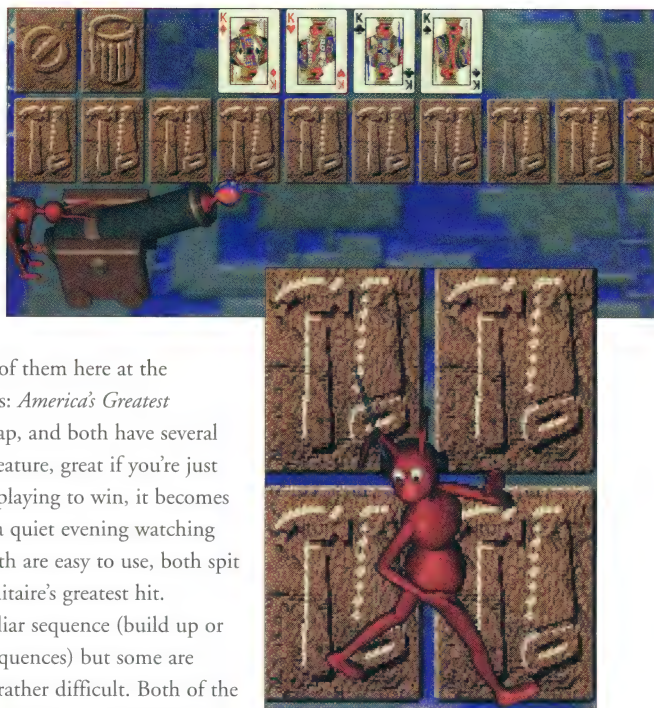
There's more icing on the solitaire cake in *Solitaire Antics Deluxe*. If you run the game off of the CD, you get skating, flying, bouncing 3D ants that congratulate you on winning, or just come running by as a diversion. Cards that can be played have an easily identifiable ribbon across them (this setting can be changed), MacSoft's version flashes when something becomes playable, or when you click on the background. Personally I prefer the ribbon. *Solitaire Antics Deluxe* offers more choices of colors and bitmaps for backgrounds, more decks of cards than *America's Greatest Solitaire Games*, and the programmers have attempted to put a new spin, if such a thing is possible, on Solitaire with the concept of Tours: Three levels ranging from easy to difficult take you through a time-trial of a series of games. The game tutorial is extremely clear, edging out the MacSoft offering just a bit.

Solitaire Antics Deluxe also keeps statistics on each players streaks, wins, and win percentages — plenty to mark your progress and keep you busy, if you go in for that sort of thing. Another nice feature is that you can leave the Help/Rules window open as well as the Stats window as you play.

Solitaire Antics lets you customize the rules to suit your whims, but if you prefer your solitaire straight up, it's the MacSoft variety for you. Looking much like the Solitaire game I played on my computer ten years ago, it's the Ivory Soap of the one-man card game: reliable, straightforward, and 99 and 44/100 percent pure, complete with the official rules.

In the end, no matter how much you dress up solitaire, it's still solitaire, but when choosing between *America's Greatest Solitaire Games* and *Solitaire Antics Deluxe*, it boils down to how much icing you like.

—Anne Marie Feld



America's Greatest Solitaire Games



\$20, MacSoft
800-229-2714
www.wizworks/macsoft



Easy to use, good variety of games to choose from



Few appearance choices, help window doesn't stay open as you play

Solitaire Antics Deluxe



\$30 Masque Publishing
303-290-9853
www.masque.com



Great tutorial, nice interface, easy to use, customizable rules



More expensive

The Basics, Part II

Know Your Macintosh Inside and Out

Last month we explored some of the computer terms that can be daunting to a new computer owner. This month we present the second part of our expanded glossary.

VRAM

Video RAM (VRAM) is a set of memory chips that store the color value for each pixel on your Macintosh's display. The more VRAM your Macintosh is equipped with, the greater the color depth possible for each pixel at any given resolution. Modern monitors are capable of displaying three different color depths: 256 colors (8 bit), thousands of colors (16 bit), and millions of colors (24 bit). A Macintosh equipped with 2MB of VRAM can display millions of colors per pixel at resolutions of up to 832 x 624, and thousands of colors at resolutions of up to 1152 x 870. In contrast, a system equipped with 4MB of VRAM is capable of displaying millions of colors per pixel at resolutions of up to 1280 x 960.

Newer Macintosh systems include large amounts of VRAM. The iMac now ships with 6MB of VRAM, while the new blue-and-white Power Macintosh G3 packs a whopping 16MB of VRAM. Although 4MB of VRAM is sufficient to satisfy the color needs of most users, VRAM performs another very important task. Extra VRAM is used by 3D computer games to store frequently used graphics textures (for example, the brick texture of a wall) so the software need not search for the texture in standard system RAM. This allows for greater texture detail and significantly speeds up game performance.

ROM

ROM, or "read-only memory," contains code that instructs your Macintosh on how to start up and function properly each time it is turned on. Physically, ROM is similar to RAM — it's one or more microchips either soldered to the logic board or installed in a dedicated slot. As implied, ROM can only be read — it cannot be overwritten, and its contents are not lost when the power is turned off.

However, iMacs and blue-and-white G3s are equipped with minimal ROM on the logic board. Much of the ROM code has been relocated to a software file on the hard drive, so it can be easily updated. In the past, systems with ROM problems required a costly ROM update to the logic board.

PCI Slots

PCI, or "peripheral component interconnect," is an expansion slot standard developed by Intel. Apple adopted the architecture in its second-generation PowerPC systems to conform to popular PC standards, in an effort to encourage developers to support the Mac. A PCI product developed for the PC market

could be adapted for the Macintosh simply by writing a Mac OS software driver.

Technologically, PCI was a winner. At the time, its relatively high bus speed of between 20MHz and 33MHz allowed expansion cards to communicate with the logic board at similar speeds.

Unfortunately, logic board bus speeds have increased significantly since then, creating a disparity between system and PCI bus speeds. Most PCI cards don't use the entire bandwidth of the expansion bus, however. An exception is video cards — they need all the bandwidth they can get. To that end, Apple has incorporated a 66MHz PCI slot in its blue-and-white Power Macintosh G3 systems to satisfy the needs of the most demanding user.



PRAM

PRAM (parameter RAM) is a special type of random access memory (RAM) that stores several important preferences, such as your choice of printer port, system sound, and startup disk. Your computer contains a small battery that keeps the system clock running and maintains power to the PRAM when the computer is turned off. Thus, each time you start your Macintosh, your preferences are remembered. However, if your battery fails, the preferences will have to be set each time you start your computer — until you are able to install a new battery. ■■■

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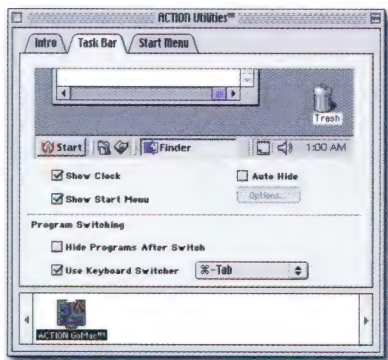
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Taking the Taskbar To Task on the Mac

Action Utilities' GoMac 2.0 takes the best features of the Windows 98 taskbar and brings them to the Macintosh. GoMac offers a distinct advantage over Mac OS 8.5's tearoff application menu — namely, it doesn't get in the way. Instead of floating over other windows and obscuring your view, GoMac's taskbar runs in its own dedicated space along the bottom of the screen. Active applications appear as large horizontal buttons, allowing you to visit any one of them with a single click.



Additionally, you can hold down a button representing an open application to reveal a list of options. You can open a Get Info box, show only that application, hide only that application, and even quit it — all without actually switching to that application.

Control Strip getting in your way? You can get rid of that, too. Simply hold down the mouse button on any unused area of the task bar. You'll access a pop-up menu that allows you to add or remove any control strip module you like.

GoMac 2.0 adds QuickLaunch to the package, making it truly indispensable. Drag any application, file, or folder onto the taskbar to add a

small icon. Now you can access that file simply by clicking on the icon. Better still, you can open a file with the application of your choice simply by dragging it onto the application icon in the taskbar. Want to open a SimpleText file with Microsoft Word? Just drag the file to the Word icon in the taskbar.

Finally, there's the clock. Sure, it needlessly duplicates the Mac OS clock — except for one major feature. When you click on this clock, a perpetual calendar pops up. No need to fuss around with a paper calendar — the date you're looking for is only a click away.

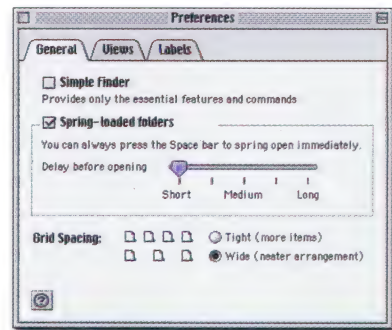
Action Utilities, www.actionutilities.com

Disk First Aid to The Crash Scene

Some of you may be familiar with the Windows ScanDisk utility that launches following a crash or improper shutdown. The Mac OS has been lacking a similar feature for quite some time now. However, the OS 8.5 team has implemented such a solution via Disk First Aid, Apple's utility for hard-drive repair. If your Mac tends to crash often, we highly suggest you enable Disk First Aid's recovery scan through the General Controls control panel. Check the "Warn me if computer was shut down improperly" box to enable the scan. If your computer crashes or was shutdown by any method other than using the Shutdown command, Disk First Aid will scan for any problems and fix them as necessary the next time you restart. The process will most certainly save you a few trips to Dr. Norton.

Spring Open Folders Now

You may already know you can spring open a folder by dragging an item over it and waiting for it to pop open. This can be somewhat time



consuming, especially if you intend to file the item several levels deep. You can speed the process, however, by holding down the space bar. With the space bar pressed, a folder will instantly spring open when you drag an item on top of it. Be sure you release the space bar as soon as the next level opens; otherwise you may wind up several levels down very quickly!

check it out!

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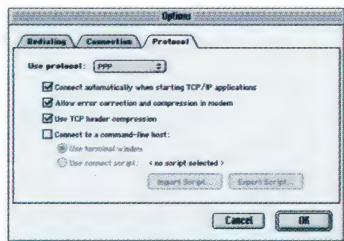
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Mac OS 8.5's Tricky Remote Access Control Panel

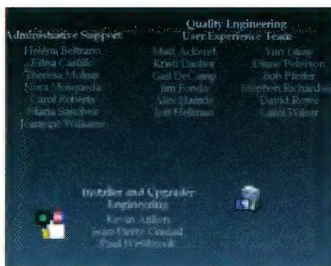
Users performing a clean install of Mac OS 8.5 have received a particularly nasty surprise: Their computers no longer connect to the Internet when an Internet application is launched. This is incredibly frustrating, especially for people whose computers automatically turn on in the morning and check for e-mail. The answer to this problem is found in the revamped Remote Access control panel (formerly PPP).

At the base of the control panel, you'll see a button called Options.... Clicking on the button brings up a window with three tabbed preference pages. Click on the Protocol tab. You will see a pop-up menu near the top, allowing you to select the protocol. Chances are good the current protocol is Automatic. You'll want to change this protocol to PPP. When you do, a number of options will appear below. The first option is "Connect automatically when starting TCP/IP applications," and you'll notice that it is unchecked. It's not clear why Apple would intentionally turn this option off, but whatever the reason, it's a snap to fix. Check the box, click OK in the lower right corner, close the Remote Access control panel, and save your changes. Your Internet applications will now initiate a connection whenever they are launched.



Hidden OS 8.5 Team Credits

Native to each release of the Mac OS are hidden goodies that you can often reveal through certain keystrokes. Rising to the call in OS 8.5, the development team has given us a great little credits presentation. While in the Finder, hold down the Control, Option, and Apple keys. Select About the Mac OS 8.5 Team from the Apple menu to see a presentation of credits, complete with extension and control panel icons from OS 8.5.



You've Got Browser Power

You've probably downloaded a movie from the Internet or received a picture via e-mail. It can sometimes be a bit of a hassle to seek out QuickTime's PictureViewer or MoviePlayer just to look at one file. Chances are you've already got a multi-purpose multimedia viewer open: your browser. Netscape Navigator and Microsoft Internet Explorer both support a rich library of multimedia formats. In most cases, you can just drag a file onto an open browser window to view it — whether it's an image, sound, or movie.

share your tips!

Got some tips you'd like to share with your fellow Machome readers? Please send them to:

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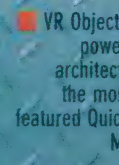
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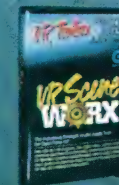
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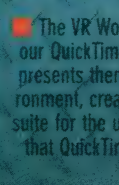
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back to basics

[You Ask, We Answer]

By Chris McVeigh

Installing Office 98, AppleTalk and File Sharing, and Megabytes vs. Megabits

Q I'm confused by the installation instructions for Microsoft Office 98. On the root level of the CD, it says to drag the Office folder onto my hard disk to install. However, when I read the documentation, it describes an installer that appears to be buried two levels deep in another folder on that same CD. It's called the Custom Installer. Is this what I use for Easy Install? I can't believe that drag/copying would completely install a major application.

Wayne Waaramaa

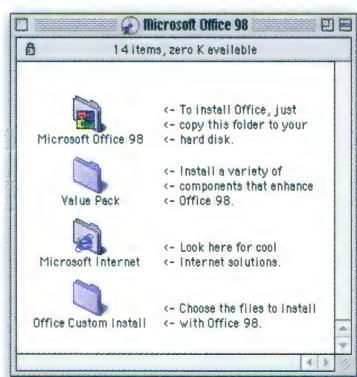
A Believe it or not, dragging the Microsoft Office folder to your hard drive does completely install the application — from a certain point of view.

Previous versions of Office depended on special files the installer placed in the System Folder. Unfortunately, users who experienced unrelated system problems and subsequently had to perform a clean install of the Mac OS soon found they could no longer run Office applications because some of the components were now missing. Many people had to completely reinstall the Office applications to recover a few key components — and this was no small task when Office shipped on 42 floppies.

Microsoft made things as simple as possible with Office 98. Simply drag the application folder to your hard drive. Technically, though, this doesn't fully

install the software, because Office still needs some components to be installed in the System Folder. Fortunately, the first time each application starts up, it copies key files from the Office folder and places them in the System Folder. On subsequent launches the application searches for these files — and if for any reason it cannot find them, it will rein-

install the files it requires from a folder that's buried deep inside the Office 98 application folder. So as long as the Office 98 folder remains intact, its applications are portable and self-repairing.



Q I have a Power Macintosh G3 running OS 8.5.1

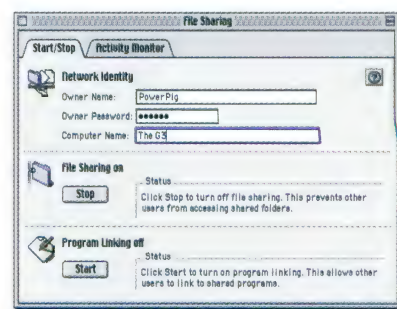
with an Epson Stylus 800 printer connected directly to the computer. I am using the Epson printer driver that requires AppleTalk to be turned off. This is not a problem, as I am at home and not connected to any networks. However, every time I start up, I get a message telling me that File Sharing is not available because AppleTalk is off. Is there a way to get rid of this message?

William F. Butterfield

A At one time, File Sharing was activated on your Macintosh. There are several possible explanations for this. The Mac OS Setup Assistant walks you through steps that result in the immedi-

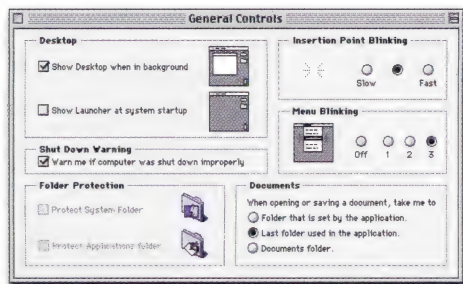
ate sharing of your computer — and if you just bought a Power Macintosh G3 or you just installed Mac OS 8.5, you will certainly have encountered the Setup Assistant. Alternatively, you may have brought the Macintosh home from work where it was previously set up on a network.

Your Epson printer uses its own unique printer software — software that doesn't communicate with the File Sharing control panel. When you select the Stylus 800 in the Chooser, it severs all AppleTalk services, leaving some loose ends. File Sharing still thinks it's supposed to turn itself on each time you start up your Macintosh. Because your Stylus 800 is using the port designated for AppleTalk, however, File Sharing



finds that it can't be activated and lets you know the reason.

Unfortunately, you can't prevent it from launching each time you start your Macintosh unless you allow it to successfully activate and then turn it off. Thankfully, there's an easy way to do that. Open your AppleTalk Control Panel. Next to Connect via: you'll see a pop-up menu. Select Ethernet from the



pop-up menu, close the window, and save your changes. This switches the *AppleTalk routing* from your printer port to the Ethernet port. (Technically, you can stop here. You shouldn't be bothered by the message again, because you've rerouted AppleTalk.) However, if you have no use for File Sharing, you might as well turn it off permanently. Open the File Sharing control panel. The second item list should say File Sharing Off, and the adjacent status box may be reporting a startup error. Click the Start button to initiate File Sharing. Once it has successfully started up, click the Stop button to shut it off for good.

Q My iMac CD-ROM drive seems to be terribly noisy, especially with older CDs. I've tried to install the iMac CD Update 1.0 from a CD, but it fails to load every time. Is my CD player so hopelessly out of balance that this software cannot correct it?

Garry Legault

A The iMac CD drive uses a smaller mechanism and tends to be louder than previous model CD drives, especially when spinning at high speed. It should not be excessively loud, however. The iMac CD Update 1.0 reduces the amount of vibration caused by some CDs in the CD-ROM drive. The irregular layout of the label ink on some compact discs can cause them to become unbalanced when spinning at high speeds, leading to vibration. If you frequently hear a loud buzz when your CD-ROM drive is spinning, you should definitely install this update.

The updater cannot install new firmware in the drive mechanism while a CD is being used. This is why the updater fails to run when you launch it from a CD. You should copy the

updater from the CD to your hard drive, or download the update from <http://asu.info.apple.com>. Make sure that you have ejected any CD that might be in the drive and then run the updater. If this fails to tone down your CD drive, you should consult an authorized Apple service provider.

Q I am a little confused about something and I was hoping you could help me out. USB is supposed to be 12MB per second, yet I keep hearing that it is slower than SCSI. Yet SCSI is rated at 5MB per second and SCSI-2 is 10MB per second. How can a device running at 12MB per second be slower than 5MB or 10MB per second?

Greg Buys

A Computer terminology can be confusing, and some companies will use this confusion to their advantage when they promote their products. The catch here is that SCSI is rated in *megabytes*, while USB is rated in *megabits*. Eight bits equal a byte, so a megabit is 1/8th of a megabyte. USB's top speed is therefore 1.5MB per second (12 megabits divided by 8), making it significantly slower than the slowest SCSI protocol (5MB per second). How can you tell the difference between megabits and megabytes in computer literature? Watch the capitalization. Megabytes are denoted by an uppercase "MB," while megabits carry a lowercase "Mb." You'll notice the same relationship between kilobytes and kilobits — "K" and "k," respectively. **MM**

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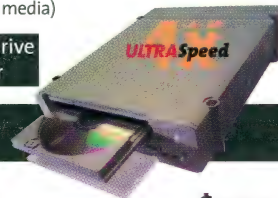
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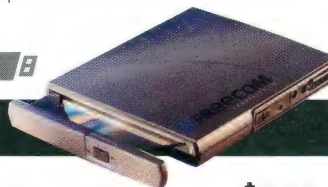
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USB: The Express Bus

More Bits for Your Buck

It would be an understatement to say that USB — Universal Serial Bus — has taken the computer industry by storm. So what's all the fuss about?

The Basics

To explain what USB is, we must first explain the term “serial.” Serial means sequential: one right after another. A serial computer connection sends digital data to and from peripherals in a single stream of voltage pulses and lulls. By comparison, a parallel computer connection sends data to and from peripherals in several streams at once.

Serial has had the reputation of being a slower standard. However, advancements in serial throughput have narrowed the gap. New serial standards such as USB and FireWire transfer data at much greater rates than their predecessors. Consider the Apple Desktop Bus (ADB), which Apple has employed for keyboards, mice, and pointing devices. It transfers data at a pokey 10 kilobits per second (Kbps). Apple's other traditional serial ports, the printer port and the modem port, are positively speedy by comparison, shuttling data at 230Kbps.

Alongside USB, however, this hare becomes a real tortoise. USB can transfer data at a whopping 12 megabits per second (Mbps) — that's 12,288Kbps.

The USB Advantage

The Universal Serial Bus offers a good compromise between speed and cost. Its faster speed makes it ideal for expansion devices that require modest bandwidth, such as external storage devices, scanners, and low-end digital cameras. At the

same time, it easily accommodates lower-bandwidth devices such as keyboards, mice, and printers. The technology is relatively low cost, too.

With USB, the hardware remains the same, whether it's on a Mac or a PC. Manufacturers need only write a Mac driver for their USB device to make it Mac compatible. This means that more peripherals will be available in the future.

USB revitalizes the concept of plug and play. You can add a USB device to your system at any time, simply by plugging its cable into a free USB port. There is no need to worry about device IDs or proper termination, which are the bane of SCSI users. Also, USB devices are hot-swappable: They can be plugged in and unplugged as needed, even while the computer is on. The USB controller on the computer's logic board continuously monitors the bus for device additions. When the controller detects a new device, its identification code is cross referenced with available drivers, and the correct driver (if it has been installed) is automatically loaded by the system. Apple has built drivers for the mouse and keyboard into the iMac system software; other devices require a special driver.

The USB Hub

USB supports up to 127 connected devices. However, most USB-equipped computers, such as the iMac, have only two open ports. To add more devices, you'll need a hub. A USB hub typically provides four to seven additional “downstream” ports, to which you connect devices, plus an upstream port which connects the hub to the computer.

USB hubs usually come in two flavors: bus powered and self powered. A bus-powered hub receives its operating power from the bus itself, as do USB keyboards and mice. A self-powered hub collects its power from a standard AC power outlet; more robust USB devices, such

as printers and scanners, must be used with a self-powered hub. It's important to note that multiple self-powered and bus-powered hubs on the USB chain must be staggered.

Additional Issues

USB does have limited bandwidth. The more devices you add and use simultaneously, the more traffic that must pass through the bus. In theory, this could cause slowdowns with high-throughput devices. The chances of this happening are relatively low, however, because most USB devices are used periodically, not continuously. For example, you will rarely print documents while scanning another at the same time.



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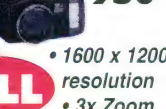
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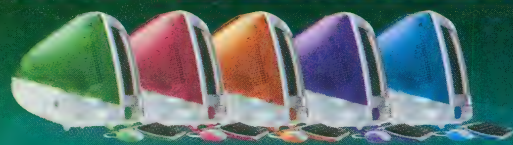
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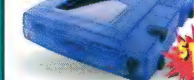
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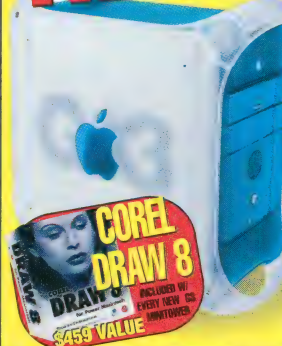
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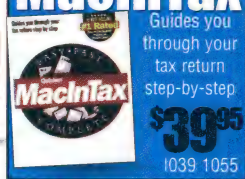
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MAC OS 8.5

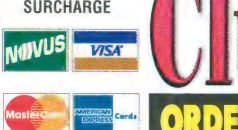


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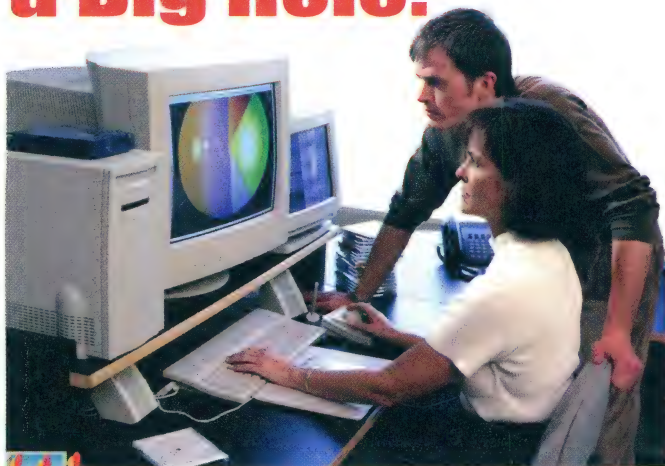
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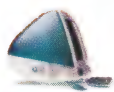
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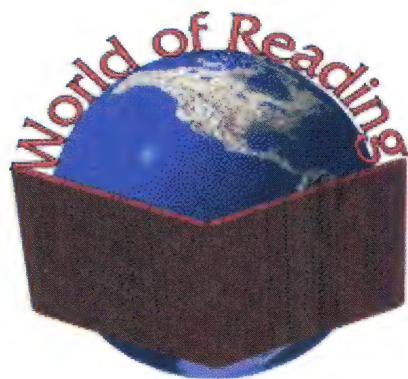
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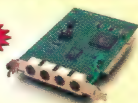
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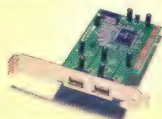
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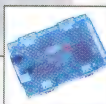
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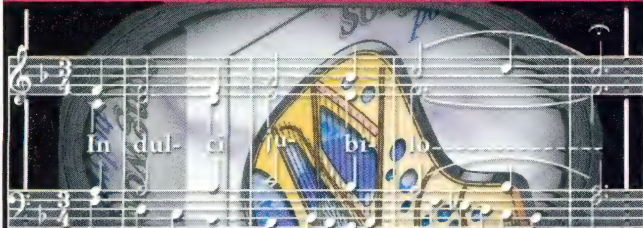
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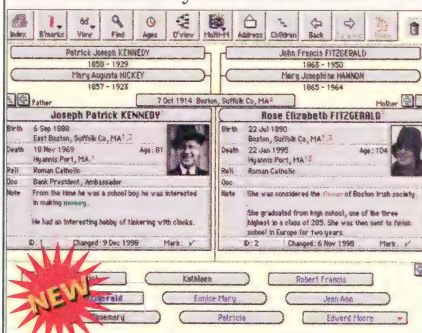
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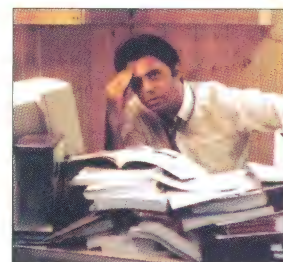
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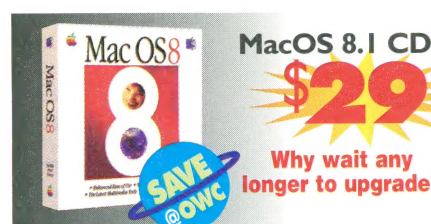


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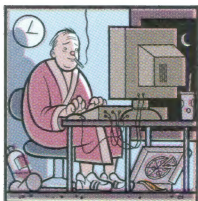
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the Finder [Commentary]

By John Poultney

Everything Must Go!

Commercialization of the Net Causes Chafing

Criminy! Even the most prescient Aldous Huxleys in our midst couldn't have foreseen this. You literally cannot swing a cat these days without hitting a "dot com" sign somewhere. And believe me, I've tried.

What with its worldwide coverage and all, the Net's a great communications tool. So it must be a great marketing tool as well, right? It's easy and cheap to set yourself up in e-commerce: just a little HTML knowledge, a few shareware packages, a domain name, and you're good to go.

The good part: ordinary folks can in many ways compete with major corporations, at least in terms of getting a message out. The bad part: It's so easy, lots of the sites just plain suck, or are the transparent tools of hucksters and charlatans.

Big corporations are making things less transparent but perhaps more sinister, using sophisticated psychological methods in their PR efforts, so sometimes it's not so easy to tell what's what. We press folk are so besieged with e-commerce stuff now, it's all blurring together. As William S. Burroughs might have said, "Greedy American look-at-me Websites scurry through vast subterranean death cables, splayed like a gigantic junkie's putrescent, distended veins, scratching desperately at your door and howling bestially to become *The Resource* for insurance, cars, drugs, animals, vitamins, music, bug spray, companionship, prosthetic limbs." Combine this with the glut of get-rich-quick and adult-oriented sites, and you've got yourself a cynicism-maker.

The academic community is so fed up, it's already testing Internet2, which will be open only to educational institutions, to maintain some semblance of order. Meanwhile, Hotline (see this month's Connections article), a promising Internet alternative, has largely been co-opted by pirates and pornmongers.

And the Web!

Someone wouldn't *really* put up a page beseeching others to send them a dollar for no reason, would they? They do. Check "http://server.tt.net/send-me-a-dollar" for starters.

Some commercialism is easy to spot. Take Buy.com. The name says it all. Productopia.com — "the essential online resource for consumers deciding what to buy and where to buy." Autoconnect.com — used cars! And CarPoint.com (from Microsoft)? "It's about selling cars." At least they admit it. Freecopy.net foists prewritten articles to flesh out content-challenged journals. This site attempts to co-opt objective journalism through trickery, with the blandest articles you can imagine, such as "the changing face of work," ready for the company newsletter. *Feh.*

But Mylifepath.com, which sounds more like something Jonathan Livingston Seagull would be thinking about than an e-commerce effort, isn't so easy to figure. This heavily marketed site offers lots of healthcare information and — surprise! — it's owned by an insurance company, Blue Shield. The same company that wouldn't cover my asthma when I was a member, because it was a "pre-existing condition" (I'd had it since age 13). Not one to carry a grudge, but still bitter and wheezy, I noted that links to certain services are available only to Blue Shield

**Insurance salesmen,
wriggling their way
through my modem
wearing corduroy
jackets with patches
on the elbows ...**

members. I hallucinated stereotypical images of insurance salesmen, wriggling their way through my modem wearing those corduroy jackets with patches on the elbows.

But a Blue Shield spokeswoman told me Mylifepath.com is not meant to sell insurance. "It provides a centralized health information service for everyone," she says. Site members don't necessarily get more than others — discounts to some health services, a personalized newsletter. Policyholders get discounts on Yoga classes, and on "healthy food" at some fine dining establishments.

OK, fine. I can see how better healthcare resources could benefit an insurance company and its customers, long term. But let's not get complacent. Keep your collective eyes open to make sure the Net doesn't become a subliminal tool of subservience. Hey, it *could* happen. **MII**

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